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RENAL INFANTILISM.

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OF recent years a good deal of attention has been paid to the subject of infantilism, or asexual ateleiosis. By these terms is meant a condition of retarded development in which the growth of the sexual organs is particularly backward, the latter characteristic being the point of differentiation of this class from sexual ateleiosis, in which the dwarf is of the "small adult" type.

This delay in development has been traced to numerous causes, the imperfect functioning of various organs or the presence of different diseases. By these means sub-groups of infantilism have been described.

From the consideration of recent cases reported there can be recognised a type of infantilism associated with, and apparently due to, a perversion of the renal functions. It is the purpose of the present communication to study this group.

NOMENCLATURE.

The cases to be included in this group are alike only in that they appear to be due to the perversion of the renal functions, for the evidence shows that the actual condition of the kidneys is not the same in all cases. It would seem best, therefore, to adopt for this type of infantilism, as Dr. Otto May (2) has adopted, the title of "Renal Infantilism." This has the advantages of being sufficiently broad to include all the cases, and of bringing the nomenclature of this class into line with that of other known types of symptomatic infantilism which are dependent on the abnormal functioning of other organs, *e. g.* intestinal, pancreatic, hepatic infantilism.

SYMPTOMATOLOGY.

The degree of infantilism present is variable. In most of the cases where organic renal disease is present it has been marked, the child being of a stature corresponding to a considerably younger age. Thus in one case the patient, aged $9\frac{3}{4}$ years, was only a trifle taller than his normal brother of $3\frac{1}{2}$ years. In another the patient of 9 years was shorter than his brother aged 5 years. The mental development usually corresponds to the stature rather than to the age of the patient. Where no organic disease is present in the kidneys the infantilism is of a less severe grade. Genu valgum has been noticed in several of the cases. It may be regarded as evidence of the imperfect osseous development which obtains in other types of infantilism.

Of more interest are the special characteristics of the renal class of infantilism. Of these the most prominent are polydipsia and polyuria. The thirst is severe, and may be the cause of the patient's coming under observation. The polyuria is marked, sometimes extreme, as in a case in which the patient passed in twenty-four hours a weight of urine equal to one fourth of his body-weight. Bed-wetting, repeated two or three times nightly, is likely to be present.

As the result of the polyuria the skin of the patient is very dry and the face rather characteristically wrinkled. This is shown in Fig. 1, where even the professional photographer has failed to obliterate all the lines of the face. The complexion is often of a pale yellow tint. In some cases marked anæmia is present.

In the group of cases without organic renal changes (diabetes insipidus) all the symptoms are of a less severe type than where chronic renal disease is present.

The age at which the symptoms were first noticed by the parents is of considerable interest. In many cases the polydipsia and polyuria were stated to have existed since birth, and in these growth was impaired from infancy onwards. In others the child was stated to be normal for the first few years of life, the thirst, polyuria and retarded growth manifesting themselves at some period of childhood.

The urine is much increased in amount, a daily output of 50-70 oz. being common. It is of very low specific gravity (1002-5). The other changes in the urine depend upon the actual condition of the kidneys and will be described later.

Cardio-vascular changes are present in some cases and are of much interest (*vide* aetiology of Group 1). They consist of hypertrophy of the left ventricle of the heart, heightened blood-pressure, and thickening of the arterial walls, which may be first recognisable in the brachial arteries.

CLASSIFICATION.

On a pathological basis cases of renal infantilism may be divided into two groups:

Group 1: Renal infantilism with organic renal disease (chronic interstitial nephritis).

Group 2: Renal infantilism without organic renal disease (diabetes insipidus).

These two groups will now be considered separately.

GROUP 1: RENAL INFANTILISM WITH ORGANIC RENAL DISEASE (CHRONIC INTERSTITIAL NEPHRITIS).

In the cases to be described in this group (two of which have not been previously recorded) there will be seen to be many similarities and only two points of difference. These latter consist of the presence or absence of cardio-vascular changes, and the age at which the symptoms were first noticed. These clinical differences are of considerable interest, which is enhanced by the fact that they do not appear to correspond to any pathological differences. Autopsies, as will be shown in the section dealing with the morbid anatomy of this group, have been made in the main types of case falling under this heading, and in each one the same changes, those of chronic interstitial nephritis, have been found in the renal disease present.

(a) *Symptoms Congenital ; no Cardio-vascular Changes recognisable.*

Of this type of case, the most interesting subdivision of Group 1, we have two examples. The first quoted is that already recorded by Dr. H. Morley Fletcher, to whom belongs the credit of being the first to point out this association of symptoms. Case 2, not previously reported, is one of extreme interest in that it tallies in almost every detail with Case 1, and coming to autopsy, was found to be a case of chronic interstitial nephritis.

CASE 1 (Fletcher [1]).—Boy, aged 6 years ; has not grown since the end of his first year. Polyuria since birth ; at four months is said to have taken four pints of fluid daily. Genu valgum developed at five years.

Family history.—Eldest child ; one sister, healthy. Mother has phthisis. Has had one miscarriage.

Present state.—Height, 2 ft. 7 in. ; weight 21 lb. Wearing clothes made for him when two years old. Drinks about $3\frac{1}{2}$ pints daily. Intelligence good. Testicles undescended. Urine : amount 40–70 oz. daily ; sp. gr. 1005 ; albumin, 0.16 per cent. ; granular casts occasionally present. Kidneys palpable. Cardio-vascular system normal ; blood-pressure, 75 mm. Hg. Inherited syphilis ; no clinical evidence, Wassermann negative.

Course.—Thyroid extract given without improvement.

CASE 2 (Miller).—Girl, aged 6 years.

Past history.—Polyuria noticed since birth ; later would wet the bed two or three times in the night, soaking through more than one mattress. Thirst not noted until child was weaned at eight months, when she required an abnormal amount of fluid. At no time in her life did she pass a night without waking up in order to drink. At birth she was extremely small ; said not to be more than 2 lb. as a guess. She was not short-coated until she was eight months old, and she was nicknamed “Dolly” on account of her small size. At three years she was admitted into St. Mary’s Hospital with diarrhoea and vomiting. She was then noted to be very small, weighing only 14 lb. Heart normal. Urine not recorded. Did not walk until she was four years old ; no knock-knee. She was backward mentally, saying only short words.

Family history.—Youngest child. One brother, aged ten, healthy, showing no signs of syphilis. Between son and patient there were two miscarriages, at four and ten weeks respectively. Mother says she was very weak from the latter miscarriage when she became pregnant

with patient. Mother recently tested for Wassermann reaction; result negative.

Present state.—Patient only 3 ft. high. Admitted to hospital with uræmic convulsions. No hypertrophy of the heart could be recognised then or when seen two days previously in out-patient department, where she had been brought up for five days' constipation, and was treated with castor oil. Complexion very sallow. Body small, thin, and yellow in colour. Child died two hours after admission. No urinary examination made.

Autopsy.—Chronic interstitial nephritis found; very slight hypertrophy of left ventricle (*vide* "Morbid Anatomy").

Although in Case 2 no examination of the urine was made, there is no reason to doubt, considering the clinical history and the condition of the kidneys, that it would have corresponded exactly to the urine in the other cases of this group.

(b) *Symptoms Congenital; Slight Cardio-vascular Changes*
recognisable.

The next case is of interest in that it seems to form a connecting link between the above cases in which no cardio-vascular changes could be recognised, and the next type in which such changes are marked. In it the left ventricle was slightly but definitely enlarged, the blood-pressure raised to 130 mm. Hg., and the brachial arteries were unduly palpable. A further point of interest in this case lies in the fact that the child was nearly ten years old, the oldest of those reported in whom the symptoms have been noted since birth.

This case has been previously reported (3), but some additional information about the child is now available.

CASE 3 (Miller [3]).—Boy, aged $9\frac{3}{4}$ years. Full-term child, said to be a good size at birth. Polyuria and polydipsia since birth; worse since an attack of diarrhoea at 5 months. Grew very little; still on bottle at three years; not put into breeches until four years old on account of small size. Measles at four years. Knock-knee developed when he began to walk.

Family history.—Parents' ages at birth of child—father thirty-three, mother thirty. Fifth in family of six, others normal. No deaths, no miscarriages.

Present state.—Height 3 ft. $1\frac{1}{2}$ in.; is only a trifle taller than his brother aged $3\frac{1}{2}$ years (*vide* Fig. 2). Proportions according to Stratz's tables are those of a child of under six years. Weight 34 lb. Intelligent but very childish, the mental development being in



FIG. 1.—Case 3 (on right), aged $5\frac{1}{2}$ years, with normal brother, aged 8 months; showing wrinkled skin and sunken eyes.



FIG. 2.—Case 3 (on left), aged $9\frac{3}{4}$ years, with normal brother, aged 3 years; showing short stature and knock-knee.

keeping with his size rather than his age; speaks well, can understand well, can read very little, can write his own name. Is still in infants' school. He is markedly anæmic; his face is sallow and wrinkled (Fig. 1); lips very pale.

Genito-urinary system.—Kidneys not enlarged; marked phimosis. Testes descended, small. Urine: Passes 40–60 oz. in hospital daily; sp. gr. 1001–4; persistent trace of albumin, only once absent, lessened slightly by rest in bed; by Esbach, 0.02 per cent; urea 0.65 per cent. On one occasion there was a very large number of granular casts, on others few or none. Urine sterile.

Cardio-vascular system.—Slight enlargement and hypertrophy of left ventricle, clinically and by skiagram; apex-beat just external to nipple-line. Pulse-rate persistently 100–120. Radial arteries not thickened but brachial quite palpable. Blood-pressure by mercurial manometer 130 mm. Wassermann reaction, negative.

Course.—Under occasional observation for two and a half years; very little change. Grew about an inch in stature. Symptoms less marked, probably owing to education. Pallor increased. Thyroid extract given without benefit. Child died (March, 1912) of acute pneumonia; no autopsy made.

(c) *Symptoms Congenital; Marked Cardio-vascular Changes recognisable.*

The next two cases show well-marked cardio-vascular changes at the ages of $6\frac{1}{2}$ and $3\frac{1}{2}$ years; in both the symptoms existed since birth.

The first case has already been published, including the pathological examinations of the organ. The second case (Case 5) has been not previously recorded.

CASE 4 (Parsons [5]).—Girl, aged $6\frac{1}{2}$ years. Small at birth and during infancy. Polyuria and polydipsia since birth.

Present state.—Physically and mentally a child of three years. Heart hypertrophied; œdema present. Broncho-pneumonia developed, and rapidly proved fatal. Urine (during terminal illness): Sp. gr. 1010; faint trace of albumin; no casts.

Autopsy.—Broncho-pneumonia; chronic interstitial nephritis; hypertrophied left ventricle (*vide* "Morbid Anatomy").

CASE 5 (Parsons).—Girl, aged $3\frac{1}{2}$ years. Polyuria and polydipsia since birth; grew little, sat up late; weight at three years, 16 lb.

Family history.—Fifth in family of six; others normal.

Present state.—Physical and mental development of child of

eighteen to twenty-four months. Weight 20 lb. Pale, cyanosed, wasted. No genu valgum. No evidence of syphilis. Heart shows some hypertrophy of left ventricle. Arteries normal. Œdema variable, sometimes of face, feet, legs, vulva with ascites. Urine: amount varies with œdema; sp. gr. 1001-4; faint haze of albumin, occasionally absent; no casts; urea 0·8 per cent.

(d) *Symptoms originating after Birth.*

This type of case does not appear so common as the foregoing as a cause of infantilism. In the three cases of this type, the first, reported by Dr. Otto May (2), appears to have been normal for the first four or five years, after which, with the onset of polyuria and polydipsia, development became much retarded, and the general condition of the patient simulated that of those described above. The other two (Cases 7 and 8) are those which were mentioned by Dr. Naish in the discussion on Case 3, which took place at a meeting of the Section for the Study of Disease in Children, Royal Society of Medicine (4). Although details are not given of these cases they are included here, as Dr. Naish has very kindly permitted us to compare the sections of the kidneys of his cases with those of our own.

CASE 6 (May [2]).—Boy, aged 9 years. Normal at first, but has hardly grown since he was between five and six years old. Never robust. Suffers from polydipsia, polyuria and enuresis.

Family history.—Fifth in family of seven.

Present state.—Corresponds to a child of four to five years; brother of five years is taller and heavier than patient. Complexion: yellowish skin, very dry and wrinkled. Urine: passes 700-1600 c.c. daily (average 1250 c.c.); considerable cloud of albumin; occasionally a few granular casts. Heart normal; brachial arteries more palpable than normal; blood-pressure, 60-100 mm. Hg. Wassermann reaction negative.

CASES 7 and 8 (Naish [4]).*—Boys, aged 16½ and 9½ years. They appeared about ten and four years old respectively. Both had genu valgum developing at fourteen and eight years old. Both were small at birth and very much smaller than the other members of their families, who were all apparently normal. Both had "polyuria and polydipsia for a considerable portion of their lives."

Autopsies.—In both there was a condition of chronic interstitial nephritis present (*vide* "Morbid Anatomy").

* Dr. Naish's cases will be published in full in our next issue.—Ed.

This type of case, therefore, strongly resembles the types in which the symptoms are congenital in every way except the age at which the symptoms develop. So close is the resemblance indeed that it may be that in these cases the early symptoms have escaped the parents' notice, and that in reality the symptoms were present from birth. Certainly, however, we cannot conclude that this is so, although such a view is rather tempting. There is, on the other hand, no theoretical difficulty in accepting the possibility of post-natal cases similar in every other way to congenital cases.

MORBID ANATOMY OF GROUP 1.

Five out of the eight cases recorded here have died, and of these, four (Cases 2, 4, 7, and 8) have been examined pathologically. In the two first of these full clinical and pathological data are available, and they make a most interesting pair of cases for comparison. In both the symptoms were congenital; both children were about six years old at death. In Case 2, cardiac hypertrophy was not recognisable during life and was barely certain after death, whereas in Case 4 it was well marked and easily discovered before death; yet, contrary to expectation, the renal changes in the two cases were almost identical. Case 2 is of further interest in that it died of uræmic convulsions.

The morbid anatomy in Case 2 will be described first and the changes in the other cases compared to it.

CASE 2.—(Symptoms congenital; cardio-vascular changes not recognisable during life; death at six years from uræmic convulsions.)

Thymus degenerated. Brain congested. Lungs congested. Liver slightly fatty. Spleen congested. Adrenals, pancreas, alimentary tract, genitals and glands normal.

Heart.—Pericardium normal. The cavity of the left ventricle was not enlarged, but comparing the wall of the left ventricle with that of another child of six years, it was thought to be very slightly hypertrophied. Myocardium appeared healthy, firm, and of good colour. Endocardium normal. Arteries normal.

Kidneys.—Both very small, weighing together just over 1 oz. Length 4.3 and 4.75 cm., breadth 3 cm. They both presented an exactly similar appearance. The capsules were scarcely at all thickened, and stripped very easily, leaving a coarse granular surface. There were no cysts, the granules being solid and consisting apparently of compensatory hypertrophy. Stellate veins injected. On section the parenchyma was firm and pale. The cortex was

greatly diminished in width (4–6 mm.) though there was some compensatory hypertrophy between the pyramids. The pyramids were firm and fibrotic. Organs anæmic but vessels prominent. Pelves slightly granular. Ureters normal. Bladder contracted, appeared normal.

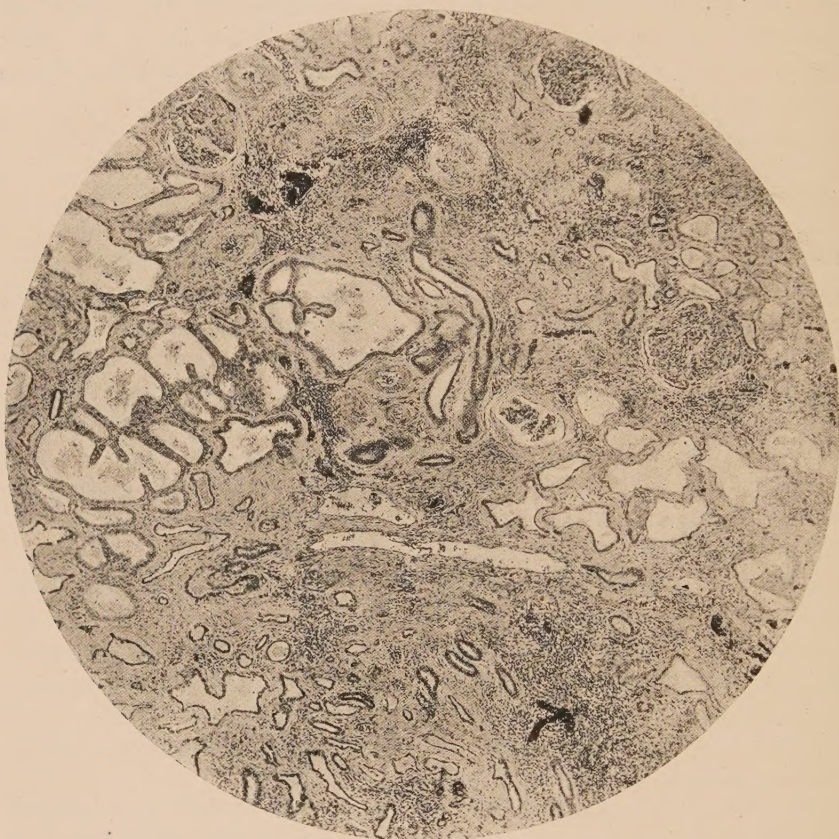


FIG. 3.—Microphotograph of section of kidney (Case 2) showing active interstitial nephritis, etc. ($\times 50$).

Histology of kidneys (vide Fig. 3).—The chief change is in the interstitial tissue, which is much increased in amount. The new-formed tissue is highly cellular, and large accumulations of small round cells are scattered throughout the section. The vessels are moderately thickened, though the vascular changes are not extreme. The glomeruli are much altered and vary in size and shape. A few are completely sclerosed, and may show fibrotic changes with adhesions of the tuft to the capsule. Some show a little hyaline change. The

condition of the tubules appears to be secondary to the interstitial change. They are irregularly dilated, some are almost cystic, but the epithelium is healthy except for some flattening due to pressure. A few of the convoluted tubules contain cell *débris*, and in some of the collecting tubules there are masses of red blood-cells, but in the main there appear to be no active parenchymatous changes.

(For the above description we are indebted to Dr. E. H. Kettle, Assistant Pathologist, St. Mary's Hospital.)

CASE 4 (5).—(Symptoms congenital; marked cardio-vascular changes; death at 6½ years from broncho-pneumonia.)

Heart.—Cavity of left ventricle enlarged; wall markedly thickened ($\frac{1}{4}$ – $\frac{3}{8}$ in.). Microscopically myocardium showed some excess of fibrous tissue.

Kidneys.—In appearance similar to those in Case 2; weight of both together just under 1 oz. Microscopically the changes in the parenchyma, glomeruli and arteries were identical with those in Case 2; the interstitial changes appeared of a slightly earlier stage than in Case 2, but were otherwise quite similar.

CASES 7 and 8 (4). The histology of the kidneys in one case, D—, was very similar to Case 2; in the other, W—, they were also very similar but rather less marked.

ÆTIOLOGY OF GROUP 1.

Of the eight cases recorded, five were males and three females. In five the symptoms were present from birth, and in three they were said to develop during early childhood. In this connection it is interesting to recall that Dr. J. E. H. Sawyer found that the sex-incidence in the granular kidney of childhood was in the proportion of two males to three females. Out of his forty-six cases three were said to have had symptoms since birth (6).

The type of organic renal disease causing this group of cases of infantilism is, it seems clearly established from the evidence we have procured, that of chronic interstitial nephritis, the kidneys in all the cases that have been examined pathologically being very closely similar. That there should be no differences in the renal lesions in the congenital and post-natal cases presents no particular difficulty to our minds; we do not know the cause of the nephritis, and can well suppose that in one type it is the result of some toxæmia acting during intra-uterine life, and in the other the result of a toxæmia acting at a later period of life. But that there should be no pathological differences in the renal conditions whether the hyper-

trophy of the heart be marked or so slight as to be barely certain even after death, is, we think, not a little surprising. Yet a study of Cases 2 and 4, which are very strictly comparable in every particular except the condition of the heart, proves that such a difference does not necessarily denote a different form, or severer degree, of renal inflammation. In Case 4 the interstitial nephritis was the more marked of the two and the child actually died of uræmic convulsions, and yet the hypertrophy of the heart was infinitesimal. The condition of the general nutrition of the children does not appear to us to account for this difference, and we confess that we have no explanation to submit.

It has been suggested in connection with the cases showing no cardio-vascular changes (Cases 1 and 3) that the renal condition would be more accurately described as "fibrosis" than as interstitial nephritis. By "renal fibrosis," considered as a pathological condition, we suppose would here be meant such a lesion as was the result of a nephritis the activity of which had entirely died down. If this be intended the histology of Case 2, a case clinically almost identical with Case 1, contradicts such a view; for here, as in the others, the chronic interstitial nephritis is found to be in an active state (Fig. 3). We do not think, therefore, that there is any evidence to show that any of these cases of infantilism would be better regarded as due to "renal fibrosis" and would emphasise the fact that they are cases of chronic interstitial nephritis.

Such nephritis is in children commonly regarded as being most frequently due to inherited syphilis. In the cases here brought forward there is no evidence of the presence of this disease; in many, indeed, such a possibility can be entirely excluded. To us it seems impossible that inherited syphilis should produce such a marked disease of the kidneys without showing signs in the other organs, at least when examined post mortem. Thus out of the eight cases, three that were not examined pathologically gave a negative Wassermann reaction, while in two others at least (probably four) there were no signs of syphilis post mortem. On these grounds, therefore, we can reasonably hold that renal infantilism with chronic interstitial nephritis is not necessarily due to inherited syphilis.

Lastly, as regards the cause of the retarded development in these cases, it has been suggested that this is to be explained by the diminution or absence of an internal renal secretion. While this may be so it seems unnecessary to us to invoke such a theory, and we would be content to regard the stunting of the growth as due to excessive drainage from the persistent polyuria and albuminuria.

GROUP 2: RENAL INFANTILISM WITHOUT ORGANIC RENAL DISEASE.
(DIABETES INSIPIDUS).

In this type of renal infantilism the interference in the physical and mental growth appears of less severity than in the group associated with chronic interstitial nephritis, and the association between infantilism and diabetes insipidus has received very little attention.

Diabetes insipidus is an uncommon condition, particularly in children. Fitcher (8), reporting a series of nine cases, notes only one in a young subject, a girl of thirteen years.

The following case, which has been under the occasional observation of Dr. G. A. Sutherland at Paddington Green Children's Hospital during the past ten years, and which is here reported by his kind permission, shows some interesting points in connection with diabetes insipidus, the congenital onset of the symptoms, the occurrence of several cases in two generations.

CASE 1.—Female, aged 16 years.

Past history (obtained partly from step-mother, who has had charge of patient since her third year).—Abnormal thirst ever since birth. Size at birth not known; certainly small for her age at three years, but could walk and run well then. Was very backward at school; never did well at her lessons.

At six years (1902) was admitted to Paddington Green Children's Hospital under Dr. Sutherland for thirst and wasting. Was noted to be very undersized as well as very thin. She seemed to have an unlimited capacity for taking fluid, though was not distressed if it were withheld. The amount of urine passed varied closely with the amount of fluid taken; on 80 oz. in a day she passed 77 oz., on 46 oz. she passed 37 oz., etc. The urine was of a very light colour, specific gravity about 1004, and always free of albumin and sugar. Under treatment she got a little fatter. She was stated to be bright and happy in the ward.

At ten years of age she was readmitted for the same complaints, and showed no change from the condition reported above.

Family history.—Mother is stated to have had "drinking diabetes" all her life; died at forty-five; had thirteen children, of whom only five lived, and several miscarriages. Two of patient's brothers have had "drinking diabetes" all their lives; one, now aged twenty-seven, is only 5 ft. high, is married, and has one child; the other, aged twenty-three, is tall. Another brother, unaffected, died of pulmonary tuberculosis.

Present state.—Patient was traced and examined. Is now (1912)

sixteen years old, and suffers from thirst "just the same as before." She will drink a couple of pints during most nights, and will easily drink a quart in a few moments. She will still drink dirty water as she used to do when a child. Has had no incontinence for past three years. She is said to have grown rather more rapidly recently, and and is now 4 ft. 11 in. high. She still looks very childish and is dull and listless, although answering questions correctly; memory appears good; step-mother says she is like a child of ten mentally; she is said to be very stupid at work. Circumference of head $20\frac{1}{4}$ in. Breasts are rather small for her age; axillary and pubic hair is present, but menstruation has not yet started.

Heart appears normal, but radial arteries are distinctly thickened; blood-pressure 108 mm. Hg. Lungs normal. Thyroid normal in size. No signs of organic nervous disease.

Urine said to be much increased in amount; sp. gr. 1001; no albumin, sugar or casts. Wassermann reaction, negative.

The next case, one recently reported by Dr. F. Parkes Weber, shows many points of similarity with the above, but no symptoms were noticed until the third year of life.

CASE 2 (Weber [10]).—Boy, aged 10 years. Polyuria and abnormal thirst since third year. Incontinence to seventh year. Eldest of family of eight; others unaffected; one stillbirth immediately following patient.

Present state.—Small for age; height 3 ft. $9\frac{1}{2}$ in. (normal, 4 ft. $3\frac{3}{4}$ in.). Weight, two thirds of normal. Thyroid small. Cardio-vascular system normal. Skiagram of skull shows sella turcica of normal, or possibly increased, dimensions. Urine: passes 4000 c.c. in twenty-four hours; sp. gr. 1001–4; no albumin or casts. Wassermann reaction positive. No improvement under treatment with thyroid, mercury, or salt-free diet.

The next case illustrates the connection between diabetes insipidus and hydrocephalus, examples of which are well known. The growth of the patient seems to have been much interfered with, which perhaps warrants its mention here. Such a complicated case illustrates what we should imagine to be the fact that renal infantilism with diabetes insipidus does not form so clear an entity as the type with chronic interstitial nephritis. Evidently some of the cases might be classed under the disease originating the symptoms (syphilis, pituitary lesions, gross organic nervous lesions) rather than as renal. Possibly inherited syphilis would account for the symptoms in this case.

CASE 3 [Cherry (7)]. Female, aged $2\frac{1}{4}$ years. At the age of two child suffered from diarrhoea, vomiting and intense thirst. The

former symptoms lasted one week only, but the thirst has persisted. She will drink one and a half gallons daily. Loss of weight was noted. Three months later child fell on to back of head, after which enlargement of the head and exophthalmos developed. One month later deafness supervened. The abdomen became much enlarged and the liver hypertrophied. Weight of patient at $2\frac{1}{2}$ years, 22 lb. (normal 33 lb.)

The only reference to diabetes insipidus as a cause of infantilism which we can trace in the literature of the subject, with the exception of that by Dr. F. Parkes Weber already referred to (10), is an article by Pechkranc published in 1911 in Warsaw, entitled "Diabetes Insipidus; also Imperfect Development of the Entire Body and of the Genitals" (9). We much regret that we have not been able to procure this at the time of writing.

ÆTIOLOGY AND SYMPTOMS OF GROUP 2.

We do not propose to enter into the question of the ætiology of diabetes insipidus. The disease is well known to be connected in many cases with syphilis, acquired or inherited, with pituitary and other gross lesions of the nervous system, while some cases appear to be entirely "functional" in origin. We should suppose that diabetes insipidus, arising from any cause, if it developed early enough and was sufficiently severe and protracted, could retard the physical and mental development of the patient.

The infantilism with diabetes insipidus is not of so severe a grade as that found associated with chronic interstitial nephritis, the stunting of the growth is not so obvious, nor is the dried, wrinkled appearance so marked. While this difference might be explained on the theory of an internal renal secretion, it would seem to us better regarded as the result of the difference in the urinary drainage going on persistently. In both groups there is persistent polyuria, but in one there is also persistent albuminuria, which is absent in the other; not unnaturally the defective growth is more marked in the type with albuminuria.

The other symptoms, the changes in the urine and the peculiar family histories, are proper to diabetes insipidus, and require no special mention here.

CONCLUSIONS.

When further cases have been investigated they may show variations from the types we have here sketched; particularly is this

to be expected in connection with the occurrence of syphilitic cases or examples of cystic disease of the kidneys as causes of renal infantilism with organic renal disease. From the cases we have studied, however, we may submit tentatively the following conclusions:

(1) A class of symptomatic infantilism secondary to a perversion of renal functions may be recognised ("renal infantilism").

(2) It may occur with organic renal disease; in the cases hitherto reported this type has been due to non-syphilitic chronic interstitial nephritis, whether cardio-vascular changes be present or absent. Here the infantilism is likely to be of a severe grade, and death tends to occur during childhood or early adolescence from uræmia or pneumonia.

(3) It may also occur apart from organic renal disease (diabetes insipidus). This type may be due to inherited syphilis, organic nervous lesions, and the other recognised causes of diabetes insipidus. The infantilism is not of a severe grade, and life may be prolonged.

(4) In either type the symptoms, polydipsia, polyuria and retarded development may be present from birth or may develop during early childhood.

(5) Hitherto no case of either type has been materially affected by treatment.

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Group 2.

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HEREDITARY ABSENCE OF THE PATELLÆ AND
DEFORMITY OF THE NAILS.

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CASES of rudimentary development or absence of the patellæ may be divided into two groups, those which are "accidental" or "sporadic," *i. e.* a single case occurring in one member of a family, and those which are hereditary. The former are not uncommon,

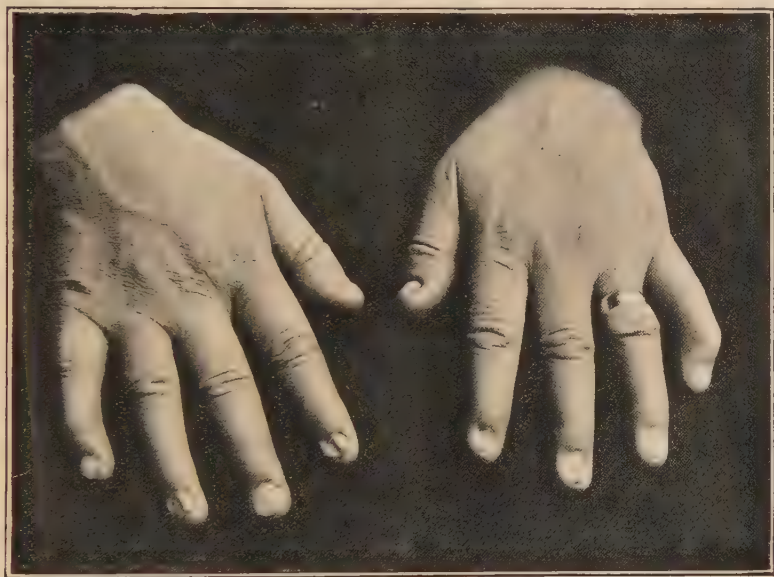


FIG. 1.—Mrs. B.— Deformity of nails is well shown.

but instances of the latter are rare, and certain features of the two families described below have not, to my knowledge, been recorded before.

No relation can be traced between the two families, one living in Scotland, and the other in London, so that they may be set down as separate examples of the condition indicated by the title of this paper.

The first has been under my personal observation, and several members were shown at the Royal Society of Medicine (Section for the Study of Disease in Children) in November, 1911.

Father, normal in every way.

Mother, aged 32 years. Patellæ absent; nails deformed (Fig. 1).



FIG. 2.—Mary B—, aged 10 years. Ridges most marked on the nails of the right little finger and left ring finger.



FIG. 3.—Hands and knees of Mary B—. Note large size of condyles of right femur.

Mary, aged 10 years. Patellæ absent; nails deformed; congenital talipes on left side; this child is unable to extend either forearm fully, apparently owing to some contraction of the soft tissues round the elbow-joints. Both radii are also dislocated, a condition which has been present since birth (Figs. 2 and 3).

Twins, premature; died soon after birth. No history of either sex or presence of deformities.

Boy, died aged 2 years; normal in every way.

Girl, died aged 2 months. Patellæ absent; cleft palate. Her mother does not recollect if the nails were deformed.

Violet, aged 4½ years. Right patella small, left rudimentary; nails deformed. This child also cannot fully extend the left forearm, but the position of the radius on each side is normal.

Kathleen, aged 3 years. Patellæ absent, nails deformed; congenital dislocation of right hip.

Girl, aged 2 months. Normal in every way.

In spite of the absence of the patellæ, the children walk well with the exception of the eldest girl, who finds some difficulty in negotiating stairs.

The nails are small, flattened, and ridged longitudinally. The nail substance is brittle and the pulp of the finger extends beyond the free border of the nail. The condition is present in both finger- and toe-nails, and varies considerably, some nails nearly approaching the normal, while others are markedly deformed.

The deformities cannot be traced further back than the mother.

The second family was seen by Dr. John Thomson, of Edinburgh, and I am much indebted to him for his courtesy in sending me a full account of his observations with permission to publish it. I have given it verbatim:

"Family history of the Lambie family.—The father's parents and other relatives are all normal as regards patellæ and nails. Neither the mother's parents nor any of her three sisters and four brothers, or their children, have been affected like herself.

"Present state.—On November the 11th, 1911, through the kindness of Dr. John A. Campbell, of Whitburn, whose patients they are, I had an opportunity of examining both parents and the eight younger children. I found as follows:

"Father, aged 33 years, is a surface man on the railway, and is a strong, healthy, intelligent man, and normal in every way.

"Mother, aged 32 years, is also healthy and vigorous. The patellæ are both absent and her finger- and toe-nails are defective. Her right elbow, although quite strong, shows a slight defect. She is

unable to extend or to supinate it as fully as the left. There is no history of any accident to the arm.

"(1) George, aged 14 years, is said to be normal in every way.

"(2) Jemima, aged 13 years, has absence of patellæ and deformity of nails.

"(3) Thomas, aged 11 years, has absence of patellæ and deformity of nails. As an infant he suffered from being unable to swallow fluids properly and this has continued to some extent all his life.



FIG. 4.—John L—, aged 6 years. Showing prominence of condyles of femora.

He rarely has it now, and his mother thinks he can stop it when he likes.

"(4) Alec, aged 10 years, is normal, except that he has had congenital inguinal hernia.

"(5) Samuel, aged 8 years, has patellæ absent and nails deformed.

"Before the birth of the next child the mother had a miscarriage at the fourth month.

"(6) John, aged 6 years; When the child was first examined the patellæ were thought to be absent. On more careful palpation, however, a rudimentary patella, a little larger than a sixpence, could

be felt in the normal position on each side; the nails were deformed. On the right side there is ptosis of the upper lid with extreme divergence outwards of the eye from paralysis of the internal rectus. The pupil is of medium size, like that of the left eye, but does not react to light. The optic disc is normal. The left eye is normal as to disc, pupil, and movements, but shows some degree of hypermetropic astigmatism. There is coarse horizontal nystagmus of both eyes. Dr. A. H. H. Sinclair, who examined the eyes, regarded the condition of the right as probably due to a congenital defect of the nucleus of the third nerve. It had been noticed a few weeks after birth. This boy has had off and on since infancy the same sort of difficulty in swallow fluids as his brother Thomas (Figs. 4 and 5).



FIG. 5.—Hands of John L.— Ridging of nails very marked.

“(7) James, aged 4 years, is normal.

“(8) Peggie, aged 2 years, is normal as to patellæ and nails, but has rickets.

“(9) Elizabeth, aged 1 year, has no patellæ and her nails are deformed.

“(10) Child, died aged 2 days; sex not stated; normal.

“In all the cases in which the patellæ are normal the nails are quite healthy in appearance, while in the others the nails always show severe deformity, although never entirely absent. The affected nails are very short (from a quarter to three quarters the normal length). In most of them the finger pulp overlaps the end of the nail, so that there is no free edge. The terminal phalanges of those fingers

which have defective nails seem in some instances a little too small (Fig. 5).

"In the case of the sixth child, John, who was repeatedly examined, there were, as already mentioned, small discs of cartilage representing the patellæ. In the other cases, which were only seen on one occasion and had to be somewhat hurriedly examined, nothing of this sort was felt. Under the circumstances, however, it seems very probable that similar rudimentary patellæ may have been overlooked in some at least of the cases.

"The condyles of the femora are very prominent, especially the external in some cases. The want of patellæ seems to have no weakening effect on the lower limbs, as those children who have it walk and run just as well as the others."

The similarity between the two families is so striking in regard to the dual defects of patellæ and nails, and their absolute coincidence in certain members, the maternal inheritance and preponderance of affected females that the condition appears to be distinct both from ordinary cases and hereditary examples of absent patellæ.

Of the latter I have found eight recorded instances and one account of the occurrence of the abnormality in several members of the same generation, and give brief notes of them.

1. Little (1) (own case). Two sisters; rudimentary patellæ appeared aged $3\frac{1}{2}$ years. Father and paternal uncle said to have had the knees similarly affected.

2. Little (Adams' case). Boy; condition hereditary on father's side.

3. Little (Sedgwick's cases). He (William Sedgwick) had had under his care a family of four generations of which eighteen persons had no patellæ and no thumb-nails; the majority were females.

4. Thorndyke (2). Case recorded in 'London Medical Gazette,' January, 1833. Adult male attending St. George's Hospital, London, whose father and grandfather had no patellæ.

5. Joachimstal (3). Son and father.

6. Joachimstal (Wirth's case). Man, aged 35 years, all the male members of whose family had no patellæ.

7. Bilhaut (4). Child; paternal inheritance.

8. Heine (5). Up to now I have been unable to verify this record and obtain particulars.

9. Pearson (6) records two sisters and their cousins. No mention is made of the parents, but this is the only instance I have found in which more than one case has occurred in a family without the condition being hereditary, and so deem it worth grouping with the other cases.

It is well known that congenital abnormalities are frequently multiple, and a glance through the accounts of both hereditary and "sporadic" cases of absent patellæ shows that this deformity is accompanied by a large variety of other defects, of which full details can be found in papers by Little (1), Thorndyke (2), and Fargeas (6), but in only one of the familial cases (Sedgwick's) does a persistent accompanying abnormality appear, and this is the only case in which mention is made of the nails. Unfortunately, full details are not given, but the description certainly implies that all those individuals lacking patellæ also lacked thumb-nails, and it is definitely stated that the majority of his cases were females. Thus it seems possible to include this family in the series of cases of "hereditary absence of the patellæ and deformity of the nails," which appear to form a group totally distinct from the fortuitous occurrence of a single case of absence of the patellæ in one member of a family, and which is characterised by coincident maldevelopment of nails and patellæ, preponderance amongst females and possibly by maternal inheritance, and differing in these respects from all except one of the previously recorded cases of hereditary absence of the patellæ.

In conclusion, I must express my gratitude to Dr. Thomson for permission to make use of his observations and the photographs of the family under his care.

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DESTRUCTION OF THE UVULA IN VINCENT'S ANGINA.*

By J. D. ROLLESTON, M.D.,

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A GIRL, aged 5 years and 10 months, was admitted to the Grove Hospital on January the 31st, 1912, certified to be suffering from diphtheria, on the seventh day of disease. Apart from an attack of

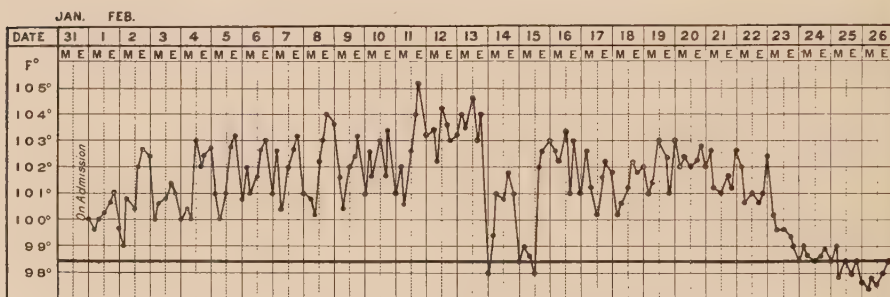
* The patient was shown at the Section for the Study of Disease in Children of the Royal Society of Medicine on April the 26th, 1912.

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whooping-cough about two years previously her health had always been good. There was no family or personal history of syphilis.

Condition on admission.—Well-developed child, showing slight degree of congenital ptosis of left upper lid. Deposit on left tonsil: 8000 units of antitoxin given. February the 1st: Ulceration of left tonsil and left side of uvula, numerous cocci and a few organisms resembling diphtheria bacilli in culture. February the 4th: Ulceration of tonsil and uvula more marked. Vincent's organisms in smear.

In spite of various local measures successively adopted—viz. syringing with solution of potassium chlorate and lavender, application of methylene-blue powder, and painting with tincture of iodine—the ulceration advanced, and was accompanied by much fœtor, dysphagia, prostration and insomnia. From February the 2nd to



February the 14th the temperature was always above 102° F., and on the 11th was 105.2° F. (see chart). On the 14th the uvula was entirely destroyed. The larynx was not affected. On the 23rd local and general improvement occurred and cicatrisation rapidly took place. Vincent's organisms were still present in the throat smears on the 22nd, but none were found on March the 2nd. The voice long remained indistinct and nasal, but gradually became clearer. From March the 1st to the 9th there was some regurgitation, but none was noticed subsequently. Wassermann's reaction, performed by Dr. Cartwright Wood on March the 16th, was positive, but became negative on March the 30th without anti-syphilitic treatment. Beyond a trace of albumin in the urine from February the 11th to the 19th no complication occurred. The knee- and ankle-jerks remained active, and there was no sign of diphtheritic paralysis.

The child was discharged in good health on April the 5th, and was shown before the Section for the Study of Disease in Children of the Royal Society of Medicine on April the 26th, when loss of

the uvula and anterior pillars and portion of the soft palate and tonsils could be seen. The free margin of the soft palate presented a depressed pale area of scar-tissue. The voice was still slightly nasal, but there had been no further difficulty in swallowing.

The features of interest in the case are, first, the exceptional severity of the attack, and secondly, the behaviour of Wassermann's reaction. Vincent's angina is usually a mild affection, and readily yields to local treatment, such as painting with tincture of iodine or applications of methylene-blue powder. Local treatment, however, in the present case proved unavailing, and improvement first seemed to begin after a good night's rest had been obtained by a dose of trional.

The uvula is frequently involved in Vincent's angina. Thus of the thirty-two cases recently reported by myself in this JOURNAL, it was affected in twenty, but the damage was never considerable, and complete regeneration of tissue always occurred. I can find only five other cases in literature in which the uvula was completely destroyed (Auché, Baron, Bruce, Niedner, Achard and Flandin). To these must be added a fatal case in a boy, aged 10½ years, related by Dr. Goffe at the discussion following the exhibition of this child. Before death the whole of the uvula and most of the soft palate had sloughed away, and at the necropsy the posterior pharyngeal walls, part of the tonsils, pillars of the fauces and larynx were found to be involved.

In Auché and Niedner's cases, as in my own, diphtheria bacilli were present, but their pathogenicity was not tested. I may mention, however, that diphtheria bacilli have been found in gangrenous conditions in the mouth and throat, and in such cases are usually of diminished virulence and incapable of producing the characteristic phenomena of true diphtheria (Freymuth and Petruschky, Passini and Leiner, Sailer, Walsh). In the present case the aggravation of the local and general condition in spite of antitoxin renders it improbable that the diphtheria bacilli present played any considerable part in the morbid process. It is more likely that the numerous cocci, the exact nature of which was not determined, were of more importance, but the way was paved for these by Vincent's organisms.

The term "Vincent's angina" has been given to the present case on account of the predominance of the fusiform spirilla in the throat smears, but it may also be called a case of primary gangrenous angina. The great destruction of tissue, the penetrating fœtor, which was much more offensive than that usually observed in

Vincent's angina, the resistance to local treatment, and the grave disturbance of the general condition, certainly justify such a description. At one time death, which is the usual issue in gangrenous angina, seemed probable, either from septic absorption or from involvement of the neck vessels with sudden and fatal hæmorrhage.

On the other hand, though an attempt is usually made to distinguish Vincent's angina from gangrene of the throat, there is little doubt, in my opinion, that the two conditions are closely allied. Roque, indeed, regards Vincent's angina as a variety of gangrene of the pharynx. In gangrenous angina, as Buday and Verprémi have shown, the fusiform bacilli and spirilla of Vincent predominate, while the numerous other organisms with which they may be associated play only a subordinate part.

The presence of a positive Wassermann's reaction in Vincent's angina, apart from concomitant syphilis, has been recorded by other observers (Gerber, Much, Saverio). In Much's case, examination of the blood during the febrile period gave a strongly positive reaction, but a fortnight later, when the angina was cured, the reaction was negative. On the other hand the reaction is not invariably positive in Vincent's angina uncomplicated by syphilis, as three such cases reported by Sobernheim and two by Saverio all gave a negative reaction.

In view of the successful results obtained with salvarsan in Vincent's angina by direct application (Sourdél, Roger, Achard and Flandin), or by intra-venous or intra-muscular injection (Gerber, Rumpel), it is possible that salvarsan might have been of benefit in this case. Gerber, indeed, regards it as hardly less specific for Vincent's angina than for syphilis. In most cases, however, such treatment is unnecessary, the ordinary local measures being quite sufficient.

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SACRAL TERATOMA REMOVED FROM A FEMALE INFANT TWO DAYS OLD.*

By H. A. LEDIARD, F.R.C.S.,

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At the date of operation (December the 16th, 1903) the infant was two days old and $4\frac{1}{2}$ lb. in weight (*vide* Figure). It was small and poorly nourished, but mature.

The tumour had a blue-red colour, a hard but well-defined pedicle, and the contents of the skin sac were felt to be fluid as well as solid, the latter being irregular, knotty, but not firm. The pedicle at one edge ran close up to the anus, and the other margin extended over the coccyx and reached the lower half of the sacrum.

Distension of the tumour was not noted when the infant cried. The anus was not concerned.

The pedicle, at least two inches wide, was clamped with Doyen's intestinal anastomosis forceps, and the tumour cut away.

The hard cartilaginous part of the interior of the pedicle was removed with scissors.

The skin was stitched over the stump before removing the clamps, but after removal a few more stitches were inserted through the stump and skin in order to arrest oozing. Not more than 1 oz. of blood was lost. The infant recovered.

When nine months old a slight watery fluid leaked from a minute perforation in the scar.

At about three years of age the child was of average weight and growth, but a slight leak from the scar remained.

When eight years old the child was examined, and no trace of mental or physical deficiency was observed.

The dropping of serum from the pin-hole aperture, which had lasted for seven years, had ceased for twelve months.

* A communication made to the Obstetrical and Gynæcological Section of the Royal Society of Medicine on March the 7th, 1912.

This dropping had been more noticeable when the child walked about, but the amount was always slight and sometimes ceased entirely for days together.

The site occupied by the teratoma became less elevated and lumpy and the irregularity of the surface near the buttocks was smoothed down.

The mother had had two children since the birth of the teratomatous infant, neither exhibiting any abnormality.

Structure.—Sections showed the various tissue elements of which the growth was composed, especially cartilage and tubes lined by epithelium. Some of the cyst spaces were lined with columnar epithelium.



Squamous epithelium was seen covering the growth, but at one part the epithelium had become modified into columnar type.

Some spaces were lined by high columnar epithelium, and there were areas of gland structure made up of small acini with cubical epithelium.

A large round space was lined by squamous epithelium and filled with desquamated epithelial cells (evaginated) "atheromatous cyst."

Another part showed bone, and at the junction of cartilage the process of ossification of cartilage matrix.

The sacral region is by no means an infrequent site for the attachment of a fairly developed or a rudimentary foetus.*

According to Coats† the most probable origin is a partial abcaudal fission with inclusion of one of the halves.

The tumour is frequently a large one and usually contains cysts,

* Edmund Owen, 'Trans. Path. Soc.,' 1888, xxxix, p. 425.

† 'Manual of Pathology,' 3rd edition, 1895.

the walls of which recall the structure of the skin, sometimes with hairs and of mucous membranes, and there may be pieces of bone and cartilage.

The child in almost all cases belongs to the female sex.

A CASE OF ULCERATIVE ENDOCARDITIS PRODUCED BY THE PNEUMOCOCCUS IN A CHILD AGED THREE YEARS.*

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*Assistant Bacteriologist, Lister Institute, and
Honorary Pathologist to the Victoria Hospital for Children.*

THE patient was a girl, aged 3 years. She was said to have been always a weakly child. The illness began with vomiting on January the 14th. On the next day she was drowsy, but screamed if roused. On January the 16th she was admitted to the Victoria Hospital for Children under the care of Dr. A. C. D. Firth. The typical signs of meningitis were present. The patient died on January the 17th.

Post-mortem examination.—The body was poorly nourished. A well-marked purpuric eruption was present on the skin of the thighs and shins. The individual petechiæ were small, round, well defined, and of a purple colour. The pericardial sac contained a little clear fluid. The heart was large. Both ventricles were dilated and hypertrophied. Both auricles contained laminated clot. The clot contained in the right auricular appendix was adherent to the wall of the chamber. The right ventricle contained a large laminated clot which was adherent to the anterior wall of the ventricle immediately below the tricuspid valve. On removal of the clot an area of superficial ulceration was found. Numerous vegetations were present in the space between the infundibular segment of the tricuspid valve and the wall of the ventricle. There were no vegetations on the internal surface of the segments of the tricuspid valve. The mitral valve was thickened. One large and several smaller patches of granulations were found on the anterior segment of the mitral valve. The left ventricle contained a laminated clot which was adherent to the mitral valve. The aortic and pulmonary valves were normal. The lungs were extremely congested and œdematous, but there was

* A paper read before the Pathological Section of the Royal Society of Medicine on March the 19th, 1912.

no sign of consolidation. The peritoneum was reddened and injected throughout. The liver was large, and on section presented a typical fatty nutmeg appearance. The spleen was large and firm. The kidneys were of normal size, of a tough consistence and a deep red colour. Neither liver, spleen, nor kidneys contained infarcts. The vessels of the stomach and small intestine were distended. On removing the skull-cap the surface of both hemispheres was found to be covered with a thick layer of greenish pus. Thick pus coated the base of the brain, involving the origins of all the cranial nerves. The cerebral vessels were examined for embolism without success. The substance of the brain was extremely soft, but there were no localised collections of pus. Sections of granulations on the tricuspid valve showed a few clumps of pneumococci. Sections of the liver showed a condition of extreme passive congestion with well-marked fatty change.

Bacteriological examination.—A specimen of the cerebro-spinal fluid was removed during the life of the patient. It contained large numbers of pus-cells and pneumococci. At the post-mortem examination specimens of the heart-blood were taken before the heart was opened. Pneumococci were present in the films made from the heart-blood, and the pneumococcus was obtained in pure culture. Numerous pneumococci were found in films made from the pus obtained from the surface of the brain, and a pure culture of the pneumococcus was obtained from this source. The cultures of the pneumococcus were of typical appearance and killed inoculated mice in twenty-four hours.

The interesting features of the case are the age of the patient and the distribution of the lesions on the right side of the heart. The lesions were undoubtedly due to the pneumococcus, and at the post-mortem examination the lungs showed no evidence of broncho-pneumonia. Judging by the state of the ventricular wall and the appearance of the liver, it seems likely that valvular disease had been present for some considerable time. Indeed, chronic valvular disease may well have been present before the onset of the final infection. In any case it seems quite certain that the suppurative meningitis was secondary to the heart condition.

I am indebted to Dr. Firth for his kindness in allowing me to make use of the clinical notes of the case.

The Royal Society of Medicine.

EPIDEMIOLOGICAL SECTION.

February the 23rd, 1912.

Diarrhœa in 1911.—Dr. DUDFIELD said that there were 6172 deaths from diarrhœa during 1911, an excess of 50·89 per cent. of the average for 1901–1910, a greater excess having been observed in 1906. The all-age total number of deaths during 1911 was 1·36 per 1000, as compared with an annual average of ·89, and the rate under two years was 32·92 per 1000, as compared with a decennial mean of 20·56. From diarrhœa and enteritis the death-rate under two years was 92·2 per 1000, contrasting with a decennial mean of 54·4. Since 1908 every known case of diarrhœa in Paddington has been visited by the women inspectors. Information was obtained by permission from the staff of St. Mary's and Paddington Green Children's Hospitals to examine all out-patient letters, by supplying the Poor Law medical officers with post-cards, and by the infant consultations. A diarrhœa register started in 1908 recorded 301 cases between July and October, the maximum number of weekly entries being 41 for the week ending August 15th: 248 occurred in children under two, of which seventeen terminated fatally.

In 1909, 205 entries were made, 163 of these being children under two years, and of the latter 6 died.

In 1910 there were 111 registrations, of which 100 were children. In 1912 the register was open for twenty-four weeks with an entry of 456, of which 387 were children under two.

The period of epidemic prevalence lasted for 11 weeks, and that of acute epidemicity for two months. There were more cases among males—100 for every 82 females, but there were more deaths among females—138 for every 100 males. There was no marked difference between the age-incidence in the two sexes.

The fatality-rate was 14·72 per cent of the known cases (13·14 for males, 16·66 for females). As regards the methods of feeding no deaths occurred among the 59 breast-fed; of the 122 artificially fed 84·6 per cent. succumbed, while of those who were brought up on a mixed diet 9·6 per cent. died.

The attack rates were for the breast-fed 27·6, for the artificially-fed 81·8, and among those on a mixed diet, 36·8. In only 52 out of some 400 houses was any provision made for keeping the food out of the living-rooms; only 14 used long-tubed bottles. Cases living on the first or higher floors of houses showed a higher recovery-rate than those living on the ground floor or basement. Relapses were relatively more frequent in basement and first-floor houses.

The number of occupants per house was found to have but little influence.

Multiple attacks independent of relapses were known in 84 houses—just over 20 per cent. of the whole number—and in 41 families, or 9·8 per cent. of the total.

As regards causation, there is a high positive correlation between earth temperature and diarrhœal mortality. The co-efficient for mortality and rainfall is negative.

Fly counts were taken at eight stations and were changed thrice weekly. The maximum of the fly curve was fourteen days later than the maximum earth temperature—an interval closely corresponding to the time required for hatching out the *Musca domestica*. The female inspectors found that the greater the number of flies, the greater the number of cases and deaths.

The fly is the link between the earth temperature and diarrhœa prevalence.

Société de Pédiatrie, Paris.

March the 12th, 1912. (*Bulletin No. 3.*)

Congenital Hemiatrophy of the Face and Tongue on the Left Side; Absence of the Sterno-mastoid Muscle and Cervical Hernia of the Lung.—M. VARIOT showed a boy, aged 5½ years, about three and a half feet high, and about three stone in weight. The head was slightly inclined to the right, without muscular rigidity. Skull symmetrical, intelligence normal. The left side of the face was markedly less developed than the right, the left ramus of the lower jaw was less thick. There was a slight asymmetry of the buccal slit, but when the child spoke, and especially when he opened his mouth, the right labial commissure was markedly drawn down as in the congenital labial hemispasm described by M. Bonniot. When the tongue was protruded the tip was directed downwards and towards the middle line, the whole organ inclining to the right. Speech was quite distinct.

Alteration caused by Diet in the Abdominal Girth of Infants.—MM. VARIOT and MORANCÉ.—Abdominal enlargement was met with in atrophic children who are behind normal children of their age with regard to height and especially to weight. This dissociation of weight and height increase showed that the children are underfed and not merely suffering from digestive disturbances. These underfed infants with large belly had the intestines, and more especially the colon, distended with air, perceptible to percussion and radiology. These atrophic children should be given a large amount of food for several reasons; they required it for growth, and they utilised it as shown by analysis of fæces. The amount should be calculated by age and not by weight. Under large quantities of milk the abdominal girth diminished 5 or 6 cm. Continuance of aërophagy might prevent complete return to normal dimensions, but the rapid alteration showed that the condition was not due to increase in the length of the intestinal tube as described by M. Marfan.

Chronic Intussusception in a Child, aged 5 years.—MM. TRIBOULET and SAVARIAUD reported the case of a child seized with intermittent attacks of pain in the epigastrium and right hypochondrium, where there was a swelling exhibiting peristaltic movements. There were no serious symptoms and the stools were normal. When operated on later they found an invagination the size of a hen's egg formed by the last few centimetres of the ileum and kept up by a large mass of tuberculous glands.

Congenital Torticollis: Subcutaneous Tenotomy.—MM. JALAGUIER and LAMY showed five children operated on by this method with remarkably good results; their ages were 6, 7, 10, 15 and 21 years.

A Case of Embolic Gangrene of a Limb following Malignant Diphtheria.—M. AVIRAGNET reported the case of a boy, aged 13 years, the subject of pharyngeal diphtheria. The false membrane did not completely disappear until more than eight days of serum treatment in large doses. A few days later he was seized with violent abdominal pain, tingling in the legs, especially the right, with cessation of pulsation in the arteries. Death occurred the following day.

M. ARMAND-DELILLE described the results of treatment of surgical tuberculosis by Rollier's method of heliotherapy.

VINCENT DICKINSON

Abstracts from Current Literature.

Medicine.

The immunity of infants to eruptive fevers and certain infectious diseases (*La Clin. inf.*, 1911, ix, pp. 609 and 641).—G. Variot compares the views expressed by certain authors with his own observations in cases of measles, scarlatina, chickenpox, vaccinia, smallpox, whooping-cough, diphtheria, typhoid and tuberculosis. The infant is extremely vulnerable through the skin (erysipelas, cutaneous affections), through the digestive tract (enteritis, diarrhoea) in hot weather, and through the respiratory passages (broncho-pneumonia) in cold weather. In contrast to this vulnerability is the relative immunity of the infant to eruptive fevers and the infectious diseases above mentioned, and even to a certain extent to tuberculosis. It is evident that if the earliest age were to pay the same tribute to all these affections as children above the age of one year, the infantile mortality would be far greater, seeing that the vital resistance of the infant is less the younger he is. Under these circumstances, although the morbidity is less, the mortality is marked. The relative immunity of the infant cannot be explained; perhaps the special character of the nutritive changes and the rapid growth contribute to give the tissues bactericidal properties against certain morbid germs. It is important, however, that the practitioner should recognise that the infant is more refractory than is generally believed to many infections, and that epidemics of the eruptive fevers do not occur in assemblages of children under one year. When an epidemic of measles occurs in a crèche it is exceptional for it to begin among the nurslings; it is almost always children from one to four years who are first attacked.

VINCENT DICKINSON.

Von Pirquet's tuberculin reaction in acute infectious diseases in children (*Jahrb. f. Kinderheilk.*, 1912, LXXV, p. 435).—W. J. Moltschanoff obtained the following results in 150 cases in which he performed the cuti-reaction. In every case of measles (42 cases) the sensitiveness to tuberculin was completely lost during the eruptive stage, but rapidly returned as the

rash faded. In scarlet fever (50 cases) there was complete loss of sensitiveness in 85 per cent. and in 15 per cent. some diminution was noted. The serum disease, when well developed, also tended to suppress the reaction. On the other hand, varicella (3 cases) and diplococcal angina (1 case) had no effect upon it.

J. D. ROLLESTON.

Pulmonary embolism as a sequel of diphtheria ('*Lancet*,' 1912, I, p. 866).—**D. Stewart**.—A girl, aged 4 years, a fortnight after admission to hospital with mild diphtheria suddenly became feverish and restless, and developed signs indicating pulmonary trouble. Pneumonia was diagnosed, but the child grew rapidly worse with increased lividity and restlessness and respiratory embarrassment. Death took place within twenty-four hours of the onset of the symptoms. The necropsy showed a large infarct involving the right upper lobe. The right side of the heart was dilated, but there was no gross valvular lesion.

J. D. ROLLESTON.

Complete heart-block in diphtheria ('*Heart*,' 1911, II, p. 77).—**G. B. Fleming** and **A. M. Kennedy**.—A girl, aged 10 years, was admitted to hospital on the fifth day of severe diphtheria and died on the tenth. On admission the pulse was 96, on the sixth day 62, on the seventh 88 in the morning, 40 in the evening, on the eighth 80 to 52, on the ninth 72 to 48, and on the tenth 62 to 40. Two days before death the heart was considerably dilated, and there was very rapid and obvious pulsation in the neck, which tracings showed to be due to auricular contractions. On the day before death palatal palsy occurred. Tracings taken on the three last days of the illness showed that the auricle and ventricle were beating at different rates: the auricular rate was 110 and the ventricular 46. On histological examination numerous inflammatory foci consisting for the most part of lymphocytes were found in the auriculo-ventricular node and bundle. There were no signs of degeneration in the vagi.

J. D. ROLLESTON.

Diphtheria carriers in a school epidemic ('*Austral. Med. Journ.*,' 1911, I, p. 233).—**G. Leary** treated two carriers according to Page's method by spraying their throats with a twenty-four hours' broth culture of *Staphylococcus pyogenes aureus*. In the first case the spray was used on two occasions with an interval of two to three days. Several swabs taken sixty hours after this were negative, and further swabs taken from the posterior part of the tonsil five days after spraying showed only one bacillus. The second case showed negative cultures in forty-eight hours and again four days later.

J. D. ROLLESTON.

Treatment of diphtheria bacillus carriers ('*New York Med. Journ.*,' 1911, II, p. 1282).—**H. Page** used on his own son in convalescence from severe diphtheria the method he had recently described of swabbing the throat with a culture of *Staphylococcus pyogenes aureus* (vide BRITISH JOURNAL OF CHILDREN'S DISEASES, 1912, IX, p. 33). As on previous occasions the procedure proved quite harmless, but release from quarantine was delayed owing to timidity in applying the treatment, as the throat did not become free from diphtheria bacilli until seven days after the treatment had been begun.

J. D. ROLLESTON.

The use of bouillon cultures of *Staphylococcus pyogenes aureus* in diphtheria convalescents and bacillus carriers ('*Med. Record*,'

1912, I, p. 593).—**R. G. Wiener** on December 11, 1911, sprayed the throat with such a culture three times a day in a case in which diphtheria bacilli had persisted three and a half weeks from the onset of the disease. On the 12th the culture was positive and a spray with twice as heavy a culture was used. On the 13th the culture, though positive, contained fewer organisms. A heavy culture was used every three hours this day. On the 14th the culture was negative and staphylococci only were present. On the 18th, four days after the last spray, the culture showed a staphylococcus and a Gram-negative coccus, probably *Micrococcus catarrhalis*; no bacilli. There was no local or constitutional disturbance.
J. D. ROLLESTON.

Diphtheria as a complication of measles (*Thèses de Paris*, 1911-12, No. 59).—**V. Lapeyre**.—Among 2023 cases of measles admitted to the Hôpital des Enfants Malades, 49 developed diphtheria, with 25 deaths. The localisation of diphtheria was as follows: Fauces 15 cases; larynx 33 cases, eyes 1 case. The latter was a fatal case in which perforation of the cornea took place (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1908, v, p. 412, and 1909, vi, p. 512). All the fatal cases were under eight years old. Post-diphtheritic measles is almost entirely a hospital affection, being hardly ever found in private practice. The thesis contains the histories of fifteen cases, all but two of which are original.
J. D. ROLLESTON.

Nephritis in measles (*Thèses de Paris*, 1911-12, No. 138).—**A. B. Maisons**.—A boy, aged 4½ years, who had had no previous illnesses besides varicella a year previously, developed acute nephritis three weeks after an ordinary attack of measles, accompanied by general anasarca, arterial hypertension and headache. Recovery took place within a month. Nephritis in measles is rare. It occurs in convalescence, being due either to chill or error in diet, or to an exceptionally virulent infection or association with other infective agents. Anatomically the glomeruli and convoluted tubules are chiefly involved. The prognosis is good as a rule. The treatment is that of any acute nephritis.
J. D. ROLLESTON.

Experimental measles in monkeys (*Journ. Amer. Med. Assoc.*, 1911, II, p. 1833).—**L. Hektoen** and **H. E. Eggers** found that *Macacus rhesus* developed a mild form of measles if injected with the virus of human measles present in the blood after the rash had appeared. Their results thus agreed with those of Anderson and Goldberger (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1912, ix, p. 35). They also found that in the measles of monkeys, as in human measles, there was a leucopenia of variable degree preceded by leucocytosis. The leucopenia affected chiefly the neutrophiles, the lymphocytes being relatively increased.
J. D. ROLLESTON.

A neglected symptom in scarlatina (*La Clin. inf.*, 1912, x, p. 75).—**H. Fromont** draws attention to Filatow's sign, *i. e.* the marked contrast between the pallor of the lips and chin and the intense redness of the cheeks. The peri-buccal pallor is of such intensity that it resembles white paper, the skin being also smoother than normal. The paleness is not, therefore, a negative phenomenon, caused by contrast of tint, but is a real want of coloration in the region affected. This sign enabled the author to diagnose scarlatina on three occasions in the absence of an eruption and on another to differentiate it from a drug eruption. The four cases are reported.
VINCENT DICKINSON.

The diazo-reaction in scarlet fever and serum sickness (*Arch. of Ped.*, 1912, xxix, p. 12).—**S. S. Woody** and **J. A. Kolmer** found the diazo-reaction positive in 17·3 per cent. of scarlet fever and 12·9 per cent. of diphtheria during the first week of disease, the time when scarlatiniform rashes are most apt to develop and tend to difficulty in diagnosis. In serum sickness the percentage of positive reactions is much lower. The value of the reaction is, however, very slight owing to the percentage of positive reactions in scarlet fever and diphtheria being comparatively low.

J. D. ROLLESTON.

Acute suprarenal insufficiency in scarlet fever (*Bull. et mém. Soc. méd. Hôp. de Paris*, 1912, xxxiii, p. 61).—**Grysez** and **Dupuich** record a case in a soldier, who on the third day of a severe attack of scarlet fever presented the following signs of acute suprarenal insufficiency: marked arterial hypotension, fall of temperature, profuse sweating, meteorism, abdominal pain, headache, somnolence, prostration and asthenia. The diagnosis was confirmed by the prompt effect of ingestion of adrenalin, the blood rising rapidly to normal and recovery finally resulting. Reference is made to a similar case reported by Hutinel in a girl, aged 11 years, who during a severe attack of scarlet fever showed extreme asthenia, low blood-pressure (75 mm.) tachycardia and tendency to syncope. Abdominal pain, nausea and vomiting were also noted. Recovery followed the oral administration of adrenalin, (*cf. BRITISH JOURNAL OF CHILDREN'S DISEASES*, 1911, viii, p. 329).

J. D. ROLLESTON.

The heart in scarlet fever (*Jahrb. f. Kinderheilk.*, 1911, lxxiv, p. 395).—**R. Lederer** and **K. Stolte**.—During an epidemic at Strasburg in 1910 70·5 per cent. of fifty cases showed some affection of the heart, viz. indistinctness and disappearance of the first sound, occurrence of murmurs, accentuation and division of second pulmonary sound, bradycardia, tachycardia, arrhythmia, and occasionally dilatation. Children under three years were very rarely affected. These phenomena regularly coincided with a fall in weight and their disappearance corresponded to a rise in weight. Almost invariably they cleared up during the patient's eight weeks' stay in hospital. Organic valvular disease could be excluded owing to the rapidity with which the phenomena subsided, nor could they be explained by anatomical investigation or chemical analysis of the heart in fatal cases. It was found, however, that the cardiac murmurs could be caused to disappear temporarily by raising the peripheral blood-pressure, *e. g.* by holding up the limbs of the child vertically, by compression of the abdominal aorta, powerful faradisation, or even by fright.

J. D. ROLLESTON.

Symmetrical gangrene of skin in scarlet fever (*Jahrb. f. Kinderheilk.*, 1912, lxxv, p. 350).—**L. Silberstein**.—A girl, aged 9 years, at the beginning of the fourth week of scarlet fever developed symmetrical gangrene of the skin of both calves simultaneously with hæmorrhagic nephritis. Complete recovery occurred without operation. The condition is attributed to damage of the vaso-motor centre, and the capillaries by the scarlatinal toxins. Congenital weakness of the vascular system was probably a predisposing cause. The mother had always been anæmic, and had had severe atonic hæmorrhage after the birth of this child. A sister of the patient had had an attack of purpura in the previous year. Of fourteen cases of post-scarlatinal gangrene, including those recently reported by Heubner and

Potpeschnigg (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1909, vi, p. 235, and 1910, vii, p. 521), five died, five recovered after amputation and four without surgical intervention: J. D. ROLLESTON.

Purpura hæmorrhagica in convalescence from scarlet fever (*Western Med. Rev.*, 1912, xvii, p. 116).—E. C. Stevenson records a case in a previously healthy girl, aged 5 years, with no family history of hæmophilia. On the twelfth day of scarlet fever she developed a discrete papular rash accompanied by headache and malaise. Five days later the rash had gone and there was profuse hæmorrhage from the right nostril. The next day there were hæmorrhages from the left nostril and oozing of blood from the mouth. On the third day of the hæmorrhagic condition purpuric spots appeared on the body, a large hæmatoma in the right upper eyelid and another on the left cheek. Hæmatemesis, hæmaturia and bloody stools followed. Temperature 101°–103·4° F. The hæmorrhagic condition lasted eight days, during which the girl became weak and restless. Finally, complete recovery took place. Treatment consisted in injections of normal saline every three or four hours, 10-gr. doses of sodium lactate, perchloride of iron and adrenalin. An extensive bibliography is appended.

J. D. ROLLESTON.

Localised and confluent varicella (*Lyon m'ed.*, 1911, cxvi, p. 237).—Chatin and Rendu record a case in a child in whom the eruption at first resembled eczema. There was a large area covering the front of the chest and a similar one on the back. On closer examination the typical elements of a chickenpox eruption were found between these areas and on the limbs. In the eczematoid areas the varicella lesions had been modified by their confluence. The surrounding skin bore a slight yellowish tinge. On inquiry it was learnt that application of tincture of iodine had been made to the chest three weeks previously. A similar case has been recorded by Galliard, and the writers themselves have often noticed that in children under one year the eruption of chickenpox is often much more confluent on the lower limbs than on the trunk, owing to the irritation caused by the fæces and urine.

J. D. ROLLESTON.

Streptococcal septicæmia with purulent œdema in varicella (*Münch. med. Woch.*, 1911, LVIII, p. 2274).—K. Blühdorn.—A child, aged 1 year, who had had measles a fortnight previously, was admitted to hospital with numerous, partly necrotic varicella lesions and marked œdema of the head and neck. Temperature 104° F. Free incisions into both sides of the neck gave issue to much œdematous fluid from which streptococci were cultivated. The same organisms were found in blood-cultures. Anti-streptococcic serum (40 c.c.) was injected, but death took place four days after admission. No necropsy. The necrotic varicella lesions were probably the portal of infection.

J. D. ROLLESTON.

The blood-pressure in erysipelas (*Thèses de Paris*, 1911-12, No. 102).—A. Bach.—In ordinary cases the fall of blood-pressure is slight, but in severe cases it is considerable. The fall is due to lesions of the suprarenals due to the erysipelatosus infection, as shown by the concomitant symptoms and post-mortem evidence. Hypotension is an early and sure sign of a grave attack. Suprarenal opotherapy in the form of adrenalin can in certain cases combat the suprarenal insufficiency successfully and improve

the prognosis. The thesis contains the histories of fifteen cases, two of which occurred in girls aged 14 and 16 years respectively, the rest in adults.

J. D. ROLLESTON.

The suprarenals in erysipelas (*'Presse méd.,'* 1911, xix, p. 929).—**Lesné, Gerard** and **Françon** record eleven cases, one of which was in a girl, aged 14 years, illustrative of acute inflammation of the suprarenals in erysipelas. The characteristic symptoms are arterial hypotension, asthenia, vomiting, diarrhoea and sudden death, but a fatal issue may be averted by the administration of adrenalin. Anatomically the suprarenals show more or less destruction of the medulla. Leucocytic infiltration, composed chiefly of small mononuclears and hæmorrhages, are found in the zona reticularis.

J. D. ROLLESTON.

Encephalitis following whooping-cough (*'Deut. Arch. f. klin. Med.,'* 1910, xcix, p. 557).—**V. Domarus**.—A hitherto healthy girl, aged 6 years, in convalescence from a moderately severe attack of whooping-cough, developed right hemiplegia and aphasia. The case was exceptional in that, contrary to the rule in such cases, according to which either complete recovery or death takes place, some paresis and disturbance of speech persisted. There was no obvious mental impairment.

J. D. ROLLESTON.

An unusual case of typhoid fever in a young child (*'Med. Record,'* 1911, ii, p. 1226).—**F. J. Barrett** describes a case in a boy, aged 3½ years, which showed the usual features save marked intestinal hæmorrhage on the fifth day. This complication is most frequent towards the end of the second week, and is very rare under ten years of age. The patient was aphasic for three weeks during convalescence.

F. R. B. ATKINSON.

Pulmonary abscess in typhoid fever (*'Giorn. internaz. d. Sci. med.,'* 1912, xxxiv, p. 263).—**T. Grossi**.—A girl, aged 13 years, at the end of the fourth week of an ordinary attack of typhoid fever complained of severe pain in the chest, and the temperature, which had been normal for some days, rose to 101·6° F. An area of impaired resonance and weakness of breath-sounds with a few small and medium-sized crepitations was found in the left subscapular region. On the third day, after a fit of coughing, the patient brought up abundant purulent sputum, slightly blood-stained, in which pieces of lung tissue could be seen with the naked eye. A bacteriological examination was not made. The expectoration lasted about two days and then the temperature fell and recovery took place.

J. D. ROLLESTON.

Thrombosis of femoral artery complicating typhoid fever (*'Canad. Journ. Med. and Surg.,'* 1912, xxxi, p. 92).—**H. T. Machell**.—A boy, aged 9 years, developed thrombosis of the right femoral artery on the nineteenth day of a severe attack of typhoid fever. The whole leg from just above the knee became gangrenous. Amputation was made through the thigh seven weeks later, and the boy made a good recovery. The rarity of this complication in the typhoid fever of children is shown by the fact that this is the first instance among 494 typhoid cases admitted to the Hospital for Sick Children, Toronto, since its opening in 1875. J. D. ROLLESTON.

A case of delirium due to an infection without mental confusion or amnesia of fixation (*Arch. de méd. des enf.*, 1911, xiv, p. 521).—**Lesage** and **Collin** described this condition in a child, aged 13 years, occurring during typhoid fever and associated with tetany and polyneuritis. The child rapidly recovered from all the symptoms. F. R. B. ATKINSON.

The dietetic and general management of typhoid fever in children (*Med. Record*, 1911, II, p. 1204).—**C. G. Kerley** recommends the following diet in this disease. Gruels: two ounces of cereal to a pint of water; broth, milk-sugar or sherry wine may be added to make the gruels palatable. Well-cooked rice, farina, cream of wheat, served with butter and cane- or malt-sugar. Milk foods rarely more than once a day. Skimmed milk should be always mixed with a gruel; the whites of two, three or four eggs daily with orange juice, lemonade and weak tea between the regular feedings. Early in convalescence scraped steak, custard, soft boiled eggs and junket are permissible. Feeds should never be given oftener than three-hourly. Fat is badly digested, but may be given in small quantities mixed with other foods. The author believes a milk diet has been used too much in typhoid fever, and he noticed in such cases the disease was more severe and the illness lasted longer than with a mixed diet. On a milk diet tympanites was the rule, while on a mixed diet it was the exception. Drugs had been of no service in his cases except to produce an evacuation when there were not two in twenty-four hours, and control the evacuations if there were more than four in twenty-four hours. No attempt should be made to reduce the temperature if it did not rise above 104° F. If the temperature rose higher the cold pack should be used.

F. R. B. ATKINSON.

Typhus fever in children (*Gaz. d. hôp.*, 1912, LXXXV, p. 609).—**C. Nicolle** and **E. Conseil**.—Children, and especially infants, present a relative immunity to typhus. On the other hand, the disease is liable to escape notice owing to the mild and abortive character of such cases, which therefore possess considerable epidemiological importance. Five illustrative cases are recorded in Tunisian children aged from three to twelve years.

J. D. ROLLESTON.

Epidemic cerebro-spinal meningitis in Athens (*Arch. de méd. des enf.*, 1911, xiv, p. 801).—**A. Papapanagiotu** records fourteen cases which occurred during an epidemic in Athens in the first quarter of 1911. The ages ranged from eight months to ten years. In young infants the diagnosis was difficult owing to a sudden onset with respiratory or gastro-intestinal symptoms or to an insidious onset, the characteristic signs of meningitis not appearing until late. Three cases had serious complications, two irido-choroiditis and one otitis media ending in complete deafness. All were treated early with Dopter's serum, with only one death. The writer followed Netter's plan of giving an intra-spinal injection on three successive days of 20 to 30 c.c. in children above two years and 10 to 20 c.c. in children below that age. In only one case was a fourth injection necessary. The quantity of fluid withdrawn was not always equal to that injected, but was sometimes less, without any harmful results. Three cases had diffuse urticaria or pains in the joints due to the serum.

J. D. ROLLESTON.

Epidemic cerebro-spinal meningitis (*Dublin Journ. Med. Sci.*, 1912, I, p. 100).—**H. S. Millar** gives a general review of this disease, discussing

in turn the pathology and bacteriology, clinical signs and symptoms, diagnosis and differential diagnosis. Otorrhœa is a very frequent complication. Among other complications may be mentioned abscess, pneumonia, pericarditis, hydrocephalus, nerve-deafness. The best treatment is to inject Flexner's serum into the spinal canal, after withdrawal of cerebro-spinal fluid by lumbar puncture. Lumbar puncture alone is a means of relief of the headache; it also prevents dilatation of the ventricles and subsequent hydrocephalus, and, if there are signs of intra-cranial pressure, should always be given a trial. Drugs are of little use. Potassium iodide is suggested by many, but does not seem to be of much value. Potassium bromide and chloral hydrate relieve headache to a slight extent, but morphine is said to be directly harmful.

J. ALLAN.

Acute glandular fever in children (*'Arch. of Pediat.,'* 1912, xxix, p. 62; and *'Am. Journ. Dis. Child.,'* 1912, III, p. 241).—**S. V. Haas** considers the disease is a clinical entity. The chief symptoms are fever, malaise, and acute swelling and tenderness of the glands of the neck, accompanied by a lesser involvement of the entire glandular system. The exudative diathesis exists in every instance and may be a predisposing factor. The condition is contagious. Streptococci may be the cause, but probably more than one organism is responsible for the disease. The prognosis is favourable, but fatal cases have been reported.

F. R. B. ATKINSON.

A case of pellagra which had its origin in Pennsylvania, probably Philadelphia, with brief notes of the disease as recently observed in Northern Italy (*'Med. Record,'* 1911, II, p. 209).—**M. B. Hartzell** narrates the only case, which occurred in a girl, aged 9 years, yet reported having its origin in Pennsylvania. The child died. The author studied the disease in Northern Italy in the pellagrosarium of Inzago, ten miles from Milan. Dr. Fritz there pointed out that in some cases there is in the disease a marked loss of sensibility in the pharynx, and also that it is thought that the children of pellagrous parents show a greater disposition to the disease than the children of non-pellagrous parents, but it is not believed that the disease is hereditary.

F. R. B. ATKINSON.

Poisoning by bromoform during whooping-cough (*'Ann. de méd. et chir. inf.,'* 1911, xv, p. 433).—**E. Merot** narrates a case of a child, aged 3 years, who swallowed a dose of 15 grm. of bromoform during the absence of the nurse. Lavage of the stomach was at once performed and a great part of the drug removed, but the author thinks 5-7 grm. were absorbed. The child recovered.

F. R. B. ATKINSON.

Stramonium poisoning (*'Austral. Med. Gaz.,'* 1912, xxxi, p. 187).—**H. H. Parkinson** describes a case in a boy, aged 4 years, who had been given by accident an infusion of stramonium instead of senna leaves. The author was called in five hours afterwards, and found the boy unconscious and throwing his arms and legs about. The pulse was 200, temperature 98° F., the respiration very shallow and rapid, pupils widely dilated. The treatment consisted of $\frac{1}{15}$ gr. apomorphine, rest in bed, and hot bottles to the body. Five hours afterwards the child was conscious but still very restless; the temperature 99.2° F., pulse 130, pupils moderate. A mixture of aconite, opium and HCl was prescribed, and the child gradually recovered.

F. R. B. ATKINSON.

Belladonna poisoning in a child (*New York Med. Journ.*, 1912, I, p. 177).—**R. E. Coughlin**.—A boy, aged 7 years, was under treatment for nocturnal enuresis with ten-minim doses of tincture of belladonna thrice daily. After a week's treatment he became drowsy and began to have visual hallucinations. His pupils were much dilated, and his face, usually pale, was very red. Recovery followed a good dose of castor oil. For two nights before the poisoning there was no bed-wetting, but on the second night after the poisoning the incontinence returned in an aggravated form.

J. D. ROLLESTON.

A fatal case of bismuth paste poisoning (*Med. Record*, 1912, I, p. 119).—**L. W. Ely** records a case in a girl, aged 3 years, with a sinus in the right lumbar region. A rise of temperature followed each injection, but otherwise nothing of note occurred until about three months after the commencement of treatment, when black discoloration appeared on one side of the tongue. Five days later constant vomiting ensued, and death took place within a fortnight, being preceded by buccal ulceration and bloody stools.

J. D. ROLLESTON.

Snake-bite (*Austral. Med. Gaz.*, 1912, xxxi, p. 56).—**E. Florance** was called to attend a child about ten years of age, and arrived about five minutes after the child had been bitten. He administered spir. amm. aromat. ʒj in ʒij of water. The pupil dilated immediately and the pulse improved. In a few seconds the pupil began to contract, and the same amount of ammonia in ʒiv of water was administered. The pupil dilated at once, and remained in that condition for half a minute, when it again contracted. The same dose was repeated. This treatment was extended over two hours, the periods of dilatation of the pupil gradually lengthening, and the child ultimately recovered. The author considers that the pupil is an excellent guide for the administration of ammonia, which, or some other rapidly diffusive stimulant, is indicated.

F. R. B. ATKINSON.

The frequency of intestinal parasites, especially of the Oxyuris vermicularis, in children (*Monatsschr. f. Kinderheilk.*, 1911, x, p. 325).—**A. Ruotsalainen** found among 300 children 110 cases of intestinal worms or their eggs (36·37 per cent.); among 132 boys, 52 cases (39·4 per cent.); and among 168 girls, 58 cases (34·5 per cent.). The oxyuris was found in 31·67 per cent. of cases, and the next most frequent was the *Ascaris lumbricoides* in 2·33 per cent. The most common age of the child was between twelve and fifteen. Telemann has described an excellent method of examining the stools for eggs. The stool is mixed with HCl and ether and then centrifuged, as a result of which three layers are separated. The eggs are to be found in the lowest layer, and can easily be examined microscopically.

F. R. B. ATKINSON.

The round worm (Ascaris lumbricoides) (*China Med. Journ.*, 1911, xxv, p. 146).—**J. Preston Maxwell** writes an excellent article on this subject based on his experience in China. He finds that the chief source of infection is uncooked vegetables, especially leek and garlic. Its normal habitat is the upper part of the small intestine, but it can live in the stomach and large intestine. As many as a hundred have been vomited up in the course of a day. The symptoms due to the presence of the worm are as follows: (1) The presence of ova in the stools. (2) A large, flabby.

protuberant abdomen in a child is quite pathognomonic. (3) Discomfort in the region of the stomach; it may amount to severe pain. (4) Craving for food coming on about an hour after a good meal is an almost certain sign. (5) Reflex symptoms, as grinding of the teeth in sleep, convulsions, etc. The writer is doubtful regarding nose-picking as being due to the presence of the worm. (6) Perversions of appetite, voracious feeding, bulimia. (7) Diarrhœa with dysenteric stools may occur. (8) Worm abscess. (9) Fæcal fistula due either to the opening up of a patent Meckel's diverticulum by the obstruction of the bowel below with a mass of worms, or by the formation of a worm-abscess and subsequent opening of the abscess cavity into the bowel and exteriorly and the formation of a track. (10) A tumour may be formed of worms inside a dilated piece of the bowel. (11) Prolapse of the bowel. (12) Diarrhœa coming on soon after midnight is occasionally present. (13) Anæmia, often profound. *Treatment*.—Castor oil with four to five grains of santonin for an adult, and a smaller dose of the latter for a child, followed by systematic dosing with a powder of hyd. c. cret. and santonin or calomel and santonin. The author considers yellow is more efficacious than white santonin. This is the only treatment.

F. R. B. ATKINSON.

Extreme somnolence in a case of ankylostomiasis (*Brazil Medico*, 1911, xxv, p. 391).—**Paranhos** was called in to examine a child, aged 10 years, who was said to be in excellent health, but afflicted by exaggerated desire for sleep. After a profound sleep of eight to ten hours he would be roused with difficulty, only to fall asleep again as soon as he was out of bed. He could find nothing in the state of the child to account for this. The blood was examined, with a negative result so far as the presence of parasites was concerned, but it showed a considerable degree of eosinophilia. This led him to consider the possibility of some intestinal parasite. Examination of the stools showed abundant eggs of ankylostoma and a few of tricocephalus. Thymol was administered and the somnolent condition was completely cured. He points out that cerebral disturbances have been noticed before in ankylostomiasis, and considers that these give support to the hypothesis that many of the effects (including the anæmia) in this disease are due rather to some toxin secreted by the ankylostoma and absorbed into the system than to actual lesions caused by the parasite in the intestinal tract.

M. D. EDER.

Treatment.

Various infections and inflammations in children treated with tincture of iodine (*New York Med. Journ.*, 1911, II, p. 1179).—**E. Mather Still** advocates this treatment in various infections and inflammations in children, chiefly throat affections. The pure tincture of iodine is applied to the throat by means of a swab. Sometimes a burning sensation in the throat is felt subsequent to this application, but it quickly passes off. The bactericidal action of the tincture of iodine is very marked, and severe sore throats often quickly clear up. A milder application for the throat consists of equal parts of tincture of iodine and glycerine. The author has carried out this treatment in 660 cases—tabulated as follows: Amygdalitis, 400; chronic and subacute otitis media, 32; otalgia, 2; pharyngitis, 42; diphtheria of the tonsils, 44; nasal diphtheria, 8; nasal and tonsillar diph-

theria, 1; stomatitis, 65; thrush, 5; laryngeal croup, 9; laryngitis, 28; scarlet fever, 9; measles, 7; nasal discharge (other than diphtheria), 6; multiple furunculosis, 2. He is of opinion that tincture of iodine, applied locally to the throat in the acute contagious diseases early in the attack and during the active stage of the disease, will prevent very materially the spread of the contagion to other members of the family and outsiders.

J. ALLAN.

Ichthyol in the treatment of whooping-cough (*Lyon Méd.*, 1911, cxvi, p. 992).—**Naamé**, in a communication to the Soc. de Thérap. of Paris, advises the use of a glycerine syrup with 10 per cent. ichthyol. His formula is: Ammonium ichthyol, 10 grm.; glycerine, 20 grm.; compound tincture of balm, 2 grm.; essence of mint, 10 per cent., 2 grm.; essence of bitter almonds, 3 drops; syrup, 500 grm. The daily dose is four to six coffee-spoonfuls up to one year, three to four dessert-spoonfuls from three to four years, and four to five table-spoonfuls for older children. The author recommends an emetic at the beginning of treatment, and the use of a menthol oil to the nostrils.

VINCENT DICKINSON.

Treatment of pertussis with vaccine (*Amer. Journ. Dis. Child.*, 1912, iii, p. 41).—**E. E. Graham** treated twenty-four children whose ages ranged from under 6 months to 8 years. All but one of the cases were in private practice. The patients at first received 20 million bacteria every four days, and when improvement began every three days, and finally every two days. From six to nine injections were given in each case. Seven were apparently not benefited, and seventeen showed some improvement. Graham thinks that there would have been better results had he employed larger doses. No rash or other complications due to the treatment were noted.

J. D. ROLLESTON.

Pertussis vaccine as a curative and prophylactic agent (*Pediatrics*, 1912, xxiv, p. 161).—**E. W. Saunders, W. Johnson, T. W. White, and J. Zahorsky** used the vaccine prepared from Bordet's bacillus in forty cases of whooping-cough. No ill-effects were noted, and benefit was obtained in all cases in which the cough was of not more than two or three weeks' duration. The ages of the patients ranged from 3 months to 11 years. Doses of 5 million bacteria were at first given, but better results were afterwards obtained by larger doses up to 25 millions. The improvement in the number and severity of the paroxysms was often evident in less than twenty-four hours. The vaccine was used as a prophylactic agent in fourteen cases, only one of which developed whooping-cough, which lasted only a week, although they were in constant contact with well-developed cases. Three injections were given at intervals of seven or eight days, both for curative and for prophylactic purposes.

J. D. ROLLESTON.

Treatment of furunculosis in children by bacterial vaccines (*Arch. of Pediat.*, 1911, xxviii, p. 772).—**McDonald**, in the past three years, has treated twenty-eight cases in children varying in age from two months to three years, including those with a few scattered furuncles and cases in which it was very difficult to find a spot not infected for the passage of the hypodermic needle. All existing furuncles were opened at the time the therapeutic inoculations were begun, and most of the cases were treated by a stock vaccine. The *Staphylococcus aureus* and *albus* were the causative

organisms in all cases. The average initial dose was 25,000,000 staphylococci; some cases received as much as 150,000 without untoward results. The average number of inoculations per patient was three, spaced seven days apart. In three cases there was slight redness and swelling at the point of inoculation, which subsided in two or three days. It was not an uncommon occurrence for a fresh crop of furuncles, usually small in size, to appear two or three days after the first inoculation. This, however, did not follow subsequent inoculations. He relates an extreme case in a girl, aged 1 year, who became covered with small pustules after a protracted attack of enteritis. The pustules increased in size and number in spite of correction of the feeding, the internal use of calcium sulphide, and the evacuation of the pus; the temperature was 102° F., and the respirations shallow and rapid, probably owing to a septic pneumonia. A culture from one of the furuncles showed the infective organism to be *Staphylococcus aureus*. A vaccine was prepared, and on the following day the patient was inoculated with 25,000,000 of the dead organisms. Seven days after, the furuncles that had been opened stopped discharging and were beginning to heal, the breathing had become better, and the temperature was normal. The child received four subsequent inoculations, spaced seven days apart; the last dose was 100,000,000 dead staphylococci. The furuncles had then disappeared, the respiration was normal, and the child made an uneventful recovery. J. E. BULLOCK.

Bacterin treatment of septic rhinitis of scarlet fever, with report of 100 cases ('*Amer. Journ. of Med. Sciences*,' 1911, II, p. 403).—J. A. Kolmer and P. G. Weston maintain from their own observations and statistics that the late desquamation of scarlet fever patients is but little capable of spreading infection, but that nasal discharges are of great importance in transmitting the disease after isolation has been discontinued. They hold that the rhinitis of scarlet fever is septic in character, distinctly infectious in itself, and probably harbours the contagium of scarlet fever. Careful bacteriological examinations of 100 cases resulted in the detection of but four organisms, of which the *Staphylococcus aureus* was by far the most frequent, occurring alone in 89 cases. These cases were treated by autogenous or by stock bacterins (vaccines) with 77 per cent. cures, 8 per cent. improved, 12 per cent. not improved, and in 3 per cent. the treatment was stopped before results were conclusive. MACLEOD YEARSLEY.

Flexner's serum in cerebro-spinal meningitis ('*Amer. Journ. Obst.*,' 1912, LXV, p. 903).—E. G. Hynes records a case in a girl, aged 5½ years, who received in all 117 c.c. of Flexner's serum and three doses of an autogenous vaccine containing in all 600,000,000 dead meningococci. The child recovered, but was left absolutely deaf. The peculiar features of the case were the absence of any deep stupor or delirium, the occurrence of cystitis, the persistent rigidity of the back and neck throughout most of the illness, and the great variance between the temperature (99° or 100° F.) and the pulse (160 or 170). J. D. ROLLESTON.

Failures in anti-meningococcal sero-therapy ('*Paris méd.*,' 1910-11, II, p. 213).—C. Dopter discusses their causes and prevention. Among the former are (1) the gravity of the infection; in fulminating cases the serum is useless. (2) The age of the patient; in spite of serotherapy, the mortality in infants is still from 48-50 per cent. (3) Late injection. (4) Defective technique, *e.g.* subcutaneous injections or injection into the subdural instead of

into the subarachnoid space. (5) Insufficient dosage and number of injections. (6) Anatomical peculiarities, *e.g.* obstruction of the ventricular orifices; in such cases intra-ventricular injection is indicated as in Fischer's case (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1910, VII, p. 428). (7) Simultaneous infection of the meninges by other organisms, *e.g.* streptococcus, staphylococcus, pneumococcus, parameningococcus, or tubercle bacillus. (8) Symptoms due to the serum itself, including rashes, serum meningitis, and anaphylaxis. To prevent the latter Besredka's method may be employed of giving a subcutaneous or rectal injection of serum some hours before the intra-spinal injection. **G. Guinard** (*Thèses de Paris*, 1911-12, No. 64) incorporates Dopfer's views in his thesis.

J. D. ROLLESTON.

The value of anti-streptococcus serum (polyvalent) in erysipelas (*Ind. Med. Gaz.*, 1912, XLVII, p. 20).—**N. S. Simpson** describes this case in a girl, aged 15 years, in whom no improvement in the erysipelas of the face occurred from the usual remedies. Ten c.c. of the serum quickly cured the condition.

F. R. B. ATKINSON.

Auto-serum treatment of ascites; cirrhosis of the liver in an infant (*Practitioner*, 1912, LXXXVIII, p. 478).—**M. Lahiri** describes the following case: A child aged 18 months had been ill for eight months with a hard enlarged liver; the abdomen was filling with fluid, the urine was albuminous and scanty. The face and eyes became puffy, and the lower limbs, scrotum, and skin of the abdomen cedematous. The treatment consisted of tinct. cantharidis $\frac{1}{16}$ m four times a day, Barham's mixture and mag. sulph. The urine increased in amount and most of the cedema disappeared, but the enlarged liver and ascites remained. Half c.c. of the child's serum was injected into the flank, and 8 days afterwards 1 c.c. The last injection, six weeks after the first, was 2 c.c. The patient was cured.

F. R. B. ATKINSON.

Suprarenal ootherapy (*Journ. méd. franç.*, 1911, v, p. 471).—**E. Sergent**.—The suprarenals have two principal functions, the one antitoxic and the other vaso-constrictor. In suprarenal insufficiency the symptoms are due to failure of the one or the other of these functions. Apart from suprarenal insufficiency suprarenal extract has been employed as a vaso-constrictor and hæmostatic, as a cardio-vascular tonic in heart disease, and as an agent in recalcification in such diseases as rickets, osteomalacia and tuberculosis. The total extract should be reserved for cases in which asthenia and profound prostration are the dominating symptoms. Adrenalin is sufficient when the signs of hypotension are most marked, as often happens in infectious diseases, especially typhoid fever. The extract should be given in cachets containing 0.30 gm. once to thrice daily and continued for as long as the symptoms of suprarenal insufficiency persist; in prolonged cases for periods of ten to twelve consecutive days separated by intervals of two to three days. The only unpleasant symptoms ever noticed are nausea, vertigo, flushing, and occasionally tremor, which all promptly cease when the drug is stopped. Adrenalin should be administered as follows: twenty to thirty drops of 1 in 1000 solution should be divided up into four or five equal doses in the twenty-four hours. Sergent employs ingestion, not injection. The blood-pressure in such cases should be taken daily, so that the drug may be discontinued at the first sign of intolerance.

J. D. ROLLESTON.

Reviews.

LEHRBUCH DER KINDERHEILKUNDE. By O. HEUBNER. Third edition. Two volumes. Twenty-four illustrations and 5 coloured plates. Leipzig: J. A. Barth, 1911. Price M. 35, bound M. 39.

THE second edition of this work was reviewed in this JOURNAL* in 1905, and its value as a text-book insisted on. This third edition has been carefully brought up to date. In addition to this the illustrations have been improved, and some of them have been reproduced in colours, thus making them much more useful than the former ones were. The various morbid conditions which occur in children are exhaustively and yet clearly dealt with, and the two bulky tomes form a veritable cyclopædia, invaluable for reference, especially as a copious index of contents and a separate one under authors' names have been provided. In a book of this kind it would be impossible to touch on the individual articles and their merits, but a perusal of several of them leaves no doubt in the mind that the work should find its place on the shelves of all those engaged in the study of the child and its diseases. There is, however, one point which must be alluded to, and that is the general absence of reference to British investigations on the subject. The valuable 'Transactions of the Society for the Study of Disease in Children,' for instance, appear to have been overlooked. It is necessary to remind our German friends that this country has been in many ways the pioneer in the subject of children's diseases and of the treatment of the child, especially in the realms of hygiene and prophylaxis. In many ways our children's hospitals compare favourably with those of the continent. This is not a question of cheap chauvinism, but a patent fact. As is usual with the books brought out by the Barth Press of Leipzig, the volumes leave nothing to be desired as regards type and get-up.

G. P.

ORTHOPÆDIC SURGERY. By E. H. BRADFORD, M.D., and R. W. LOVETT, M.D. London: Baillière, Tindall & Cox, 1912. Royal 8vo. Pp. viii + 410, with 364 illustrations. Price 14s. net.

POSSIBLY on account of the glamour of the abdominal operation, orthopædic surgery has been somewhat under a cloud in this country. Fortunately this cloud seems to be lifting, as there is an undoubted increase of interest in the subject lately on the part of the student and practitioner. For some time most of the text-books on this branch of surgery have been of large size, and suited to the needs of the specialist rather than to those of the student. The authors of this work, realising the necessity for a smaller text-book, have entirely re-written their treatise, and have cut it down by the deletion of unnecessary details to a size that can be readily digested by any student. Yet in so doing they have not scamped any section of the subject, nor omitted to bring the matter up to date. The principles of treatment throughout are based upon a sound pathology, and though all the details of the mechanical methods are not always described the mechanical principles are always clearly stated. It is the necessity for a due appreciation both of mechanics and of pathology that is the chief difficulty in the training of an orthopædic surgeon.

* THE BRITISH JOURNAL OF CHILDREN'S DISEASES, 1905, ii, p. 336.

Many methods which are little used in this country, and many that are completely neglected, are described, and the book is replete with suggestions for the English surgeon in search of new work. As examples, the section on the treatment of scoliosis by correction in plaster jackets may be cited—a method which has never found favour in this country, but which is undoubtedly the most successful method of treating severe cases. In a very brief section on the treatment of ankylosis, also, much in the shape of the new method is suggested. The instrumental methods described are naturally very different from ours, but this is in a way an advantage as the principles are illustrated, and there is always a great deal to be learnt from the methods of others. The book is well illustrated, the illustrations being to a large extent original, and it is clearly and concisely written. It can be safely recommended both to the student and to the practitioner, and it should certainly be read by all who specialise in orthopædics.

R. C. E.

LE INFEZIONI PARATIFOSE NELL' INFANZIA. Per il Dott. SEBASTIANO CANNATA. Palermo, 1911.

Dr. CANNATA, assistant to Professor Jemma at the Institute of Clinical Pædiatrics in the University of Palermo, has written an admirable monograph on paratyphoid infections in childhood. He distinguishes three varieties: (1) Pseudo-typhoid or paratyphoid properly so-called. (2) A gastro-intestinal form. (3) Anomalous forms. Twelve illustrative cases are recorded in children, aged from seventeen months to ten years. Eleven belonged to the first class, and one in which the symptoms were those of catarrhal jaundice was an example of the third class. In ten the infection was due to paratyphoid B bacillus, and in two to paratyphoid A bacillus. The author holds that at present there are no anatomical or clinical means of distinguishing between typhoid and paratyphoid fever in children, and that diagnosis is impossible without laboratory aid. He gives preference to the agglutination test, employing a macroscopic method. Attention, however, is drawn to certain points of difference between the two diseases, such as the frequency of nasal and labial herpes in paratyphoid and its rarity in typhoid. Special stress is laid on the relative frequency of paratyphoid meningitis, which owes its gravity to the fact that it is always associated with a paratyphoid septicæmia (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1910, VII, p. 513). The prognosis, though good in the pseudo-typhoid and gastro-intestinal varieties, in the septicæmic and meningeal forms, which are principally found in infants, is invariably fatal.

The value of the monograph is enhanced by a bibliography of 154 references.

J. D. R.

Correspondence.

"MUCOUS GASTRITIS."

To the Editor of THE BRITISH JOURNAL OF CHILDREN'S DISEASES.

SIR,—I have to thank you for giving me this opportunity of replying to Dr. Cautley's references to the paper which I published in conjunction with Dr. Willcox in 1907. Two of our conclusions in that communication

are questioned by Dr. Cautley in his paper on "Mucous Gastritis in Infancy."*

In the first place we were led to conclude that the presence of mucin (recognised by chemical tests) in the vomit of a chronic case of wasting was a sign gravely suspicious of hypertrophic pyloric stenosis. We stated that "if in a wasted infant there is retention of food in the stomach, with mucin in the gastric contents, with a marked excess of ferment activity, we think there is strong reason to believe that we are dealing with a case of hypertrophic pyloric stenosis. On the value of a negative result we would not at present care to lay much stress," since we regarded these changes as secondary, being due to gastritis and hypertrophy of the gastric wall respectively. We have now analysed the gastric contents in about a dozen cases of hypertrophic pyloric stenosis, all of which, with one exception, were verified post mortem, but have not investigated one early enough to find no mucin, although we have seen the mucin disappear to a faint trace under treatment by lavage. On the other hand, we have not found mucin to be present apart from hypertrophic pyloric stenosis.

Dr. Cautley, however, holds that the presence of mucin in the vomit is not very suggestive of hypertrophic pyloric stenosis, since the condition he terms "mucous gastritis" may exist alone, and, indeed, is not uncommon. I am not, I think, prepared to yield this point on the evidence he has as yet adduced for "mucous gastritis." The case he describes in detail appears to me to be one of hypertrophic pyloric stenosis of the mild type seen particularly in female infants. I do not believe that "marked" gastric peristalsis becomes visible in the absence of hypertrophy of the gastric wall, nor that a pylorus becomes palpable when plugged with mucus. Further, since there appears to have been no great excess of mucus in the vomit for the first four weeks of the illness, the term "mucous" gastritis does not seem to be very applicable to the primary cause of the child's condition. Having no qualms in admitting the possibility of a cure in cases of hypertrophic pyloric stenosis without operation, I should have no hesitation in making this diagnosis in any case where, as in the case under discussion, the two physical signs of the condition were present. If this be the correct diagnosis here the gastric contents, so far as they are reported, are in line with the results we recorded. The mild cases of "mucous gastritis" to which Dr. Cautley refers, but which he does not describe, one would imagine to be cases of acute gastritis, with perhaps colitis—such cases as do not enter into the types which Dr. Willcox and I investigated.

The second point raised by Dr. Cautley refers to our classification of cases, which he regards as incomplete. This it was admittedly, since we were attempting to base a classification entirely on the differences existing in the gastric secretion. Dr. Cautley's classification seems in many respects preferable to ours, but that it is based on analytical investigations does not appear.

I am,

Yours faithfully,

53, Queen Anne Street, W.

REGINALD MILLER.

* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1912, ix, p. 241.